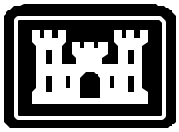

U.S. Army Corps of Engineers
San Francisco District
South Pacific Division

Napa County
Flood Control &
Water Conservation District

NAPA VALLEY WATERSHED MANAGEMENT FEASIBILITY STUDY

PROJECT MANAGEMENT PLAN

April 2001

Concurrence Page

San Francisco District,
U.S. Army Corps of Engineers

We, the undersigned, concur with the Project Management Plan dated April 2001, Napa Valley Watershed Management Feasibility Study, Napa County, California. We understand that this is a "living " management document that will be updated as needed through the process stated within.

NAME	TITLE	SIGNATURE	DATE
Roger Golden	Project Manager		11 Apr 2001
Arijs Rakistins	Deputy DE for PM		12 Apr 2001
Tom Kendall	Ch, Planning Br for		4/16/01
Herb Cheong	Ch, Engineering Br		12 Apr 2001
Jim Howells	Quality Control Manager		30 March 2001
Thomas W. Fleeger	Acting Ch, Engineering & Technical Services Div		23 April 2001
John Eft	District Council		17 Mar 01
Marvin Fisher	Ch, Real Estate for		16 Apr 01
Timothy O'Rourke	Lt. Colonel, District Engineer		23 Apr 01

Non-Federal Sponsor

The undersigned, concur with the Project Management Plan dated April 2001, Napa Valley Watershed Management Plan, Napa County, California. We understand that this is a "living" management document that will be updated as needed through the process stated within.

NAME	TITLE	SIGNATURE	DATE
Mary Lou Holt Mayor of Yountville	Chair, Napa County Flood Control & Water Conservation District	Mary Lou Holt	4-17-01

NAPA VALLEY WATERSHED MANAGEMENT STUDY
PROJECT MANAGEMENT PLAN

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ENCLOSURES

CHAPTER I – PURPOSE AND SCOPE

1.1 INTRODUCTION

The Napa Valley Watershed Management Feasibility Study (WMFS) and the subsequent Watershed Management Plan (Plan) would identify problems and opportunities for implementing environmentally and economically beneficial restoration in the Napa Valley watershed providing ecosystem benefits, such as flood reduction, erosion control, sedimentation management, and pollution abatement. The study would include the identification, review, refinement, and prioritization of restoration and flood protection opportunities with an emphasis on restoration of the watershed's ecosystem (e.g.: important plant communities, healthy fish and wildlife populations, rare and endangered habitats and species (see Enclosure B), and wildlife and riparian habitats). The development of the plan would be an iterative process, providing technical, planning, and design assistance to local entities to foster restoration of the watershed ecosystem.

The Napa Valley is recognized worldwide for it's scenic beauty, vineyards and premium wineries and it's regional significant to the health of San Pablo Bay. Concerned residents have recognized the need to protect and preserve the scenic, recreational, and natural resource values of the Napa Valley watershed. The Napa Valley watershed is within the jurisdictional boundaries of Napa County. Napa County recognizes the importance of the watershed and supports the protection of its natural resources. This unique situation provides a great opportunity to illustrate the effectiveness and importance of a watershed focus. With the support of the local community, the ecosystem functions would be evaluated to determine the best watershed management practices for the long-term sustainability of the natural resources with the local support to implement the watershed management measures.

An overview of the plan's purpose and scope is provided in Chapter 2, Reconnaissance Overview, Section 905(b) Analysis. The Analysis has been reviewed and approved by U.S. Army Corps of Engineers Headquarters.

The U.S. Army Corps of Engineers, San Francisco District (Corps) and the Napa County Flood Control and Water Conservation District (NCFCD) developed this document with input from the Napa County Planning Department (NCPD), Napa County Up-Valley Cities, Napa County Watershed Task Force (WTF), Napa County Resource Conservation District (RCD), Regional Water Quality Control Board (RWQCB), the San Francisco Estuary Institute (SFEI), and other regional and local stakeholders. Coordination of local and regional restoration programs would be critical in the planning process to provide a watershed management plan that identifies the best management practices for the watershed and supports potential spin off projects to be implemented independently of the WMFS. The regional monitoring and assessment strategy being developed by regional interests would be a component in the development of the feasibility report. The monitoring and assessment strategy incorporates different

indicators, classifications, and potential pilot projects to provide benchmarks for future restoration activities.

1.2. DEFINITION OF PROJECT MANAGEMENT PLAN

a. The Project Management Plan (PMP) defines the planning approach, activities to be accomplished, schedule, and associated costs that the Federal Government and the non-Federal sponsor(s) would be supporting financially. The PMP would be an attachment to the Feasibility Cost Sharing Agreement (FCSA). The PMP, therefore, defines a contract between the Corps and the non-Federal Sponsor(s) and reflects a "buy in" on the part of the financial backers, as well as those who would be performing, and reviewing the activities involved in the development of the plan.

b. The PMP would be subject to scope changes as the technical pictures unfold. The planning process would be iterative without a predetermined outcome, more or less costs and time may be required to accomplish reformulation and evaluations of the tasks and multi-purpose restoration opportunities identified in the PMP. The scopes and assumptions outlined in the PMP enable deviations and the associated impact in either time or money to be easily assessed and decisions can be made on how to proceed.

c. The PMP would be used as the basis to determine if the draft watershed management plan has been developed in accordance with established procedures and previous agreements. The objective would be to provide early assurance that the plan is being developed in a way that would be supported. The PMP would reflect and document changes during the plan development.

d. During the completion of the PMP and as portions of the WMFS are developed, it is anticipated that non-Federal sponsor(s) and/or other responsible entities may spin off restoration and/or flood reduction projects. These projects may be implemented with the support of the Corps and/or other Federal, State, or local agencies, non- profits or private grant programs through existing authorities where possible or new authorities where necessary. It is the intent of the PMP to provide the local jurisdictions with the necessary watershed technical studies needed to support and facilitate watershed projects to be implemented under their own authority and cost sharing requirements.

CHAPTER II - Reconnaissance Overview
Section 905(b) (WRDA) Analysis

Chapter II, Section 905(b) (WRDA) Analysis, establishes the preliminary scope of the feasibility study. Headquarters has approval Chapter II, Sec. 905(b) Analysis. The approval of the Analysis confirms that the development of the Watershed Management Plan is in the Federal interest. Chapters III, IV, and V refine the scope, schedule, and cost.

2.1. AUTHORITY

Section 503 of WRDA 1996, Watershed Management, Restoration, and Development initiated the Napa Valley Watershed Reconnaissance Study and the development of the PMP. Section 503 authorizes the Corps of Engineers "to provide technical, planning, and design assistance to non-Federal interests for carrying out watershed management, restoration, and development projects …for the following purposes: 1) Management and restoration of water quality. 2) Control and remediation of toxic sediments. 3) Restoration of degraded streams, rivers, wetlands, and other waterbodies to a natural condition as a means to control flooding, excessive erosion, and sedimentation. 4) Protection and restoration of watersheds, including urban watersheds. 5) Demonstration of technologies for nonstructural measures to reduce destructive impacts of flooding."

The feasibility study of the Napa Valley watershed would meet the objectives of Section 503 as identified in this analysis and the PMP under the authority of the River and Harbor Act of 1962 (Northern California Streams Authority), Title 1, Sec 206, which states:

"The Secretary of the Army is hereby authorized and directed to cause surveys for flood control and allied purposes, including channel and major drainage improvements,…, in drainage areas of the United States and its territorial possessions, which include…: Sacramento River Basin and streams in northern California draining into the Pacific Ocean for the purpose of developing, where feasible, multi-purpose water resource projects…"

2.2. PURPOSE

The purpose of the WMFS would be to complete the Napa Valley Watershed Management Plan by providing technical, planning, and design assistance to the non-Federal interests for carrying out watershed management, restoration and development on the Napa River and its tributaries from Soscol Ridge, located approximately 5 miles south of the city of Napa, to Mt. St. Helena, the northern most reach of the Napa River watershed, California. The watershed plan would look at the upper Napa Valley watershed including Napa, Yountville, St. Helena, Calistoga, and the unincorporated areas of Napa County north of Soscol Ridge. A management program incorporating

flood protection and environmental restoration would be developed as a result of the watershed plan.

The Napa Valley is recognized worldwide for it's scenic beauty, vineyards and premium wineries and unique tourist amenities including hot springs resorts. Concerned residents have recognized the need to protect and preserve the scenic, recreational, and natural resource values of the Napa Valley watershed.

The city of Napa is familiar with working with the Corps of Engineers on water resource problems, flood protection, and environmental restoration issues. The Napa River/Napa Creek Flood Protection Plan (1997) was prepared by the Corps, Sacramento District, and the Napa County Flood Control and Water Conservation District (NCFCD). The Napa River/Napa Creek Flood Protection Plan addresses the portion of the Napa River that flows through the City of Napa.

2.3. LOCATION OF PROJECT/CONGRESSIONAL DISTRICT

The Napa Valley watershed is located within the San Pablo Bay drainage basin in Napa County, California. The catchment area of the watershed, as defined by this study, is approximately 400 square miles (260,000 acres). There are 47 named tributaries to the Napa River.

The study area is located within the 1st Congressional District, represented by Congressman Mike Thompson.

2.4. PRIOR STUDIES, REPORTS AND EXISTING WATER PROJECTS

Napa County Resource Conservation District, Napa River Watershed Owner's Manual, 1994. A collection of recommendations listing specific practices that landowners and managers may adopt to maintain a healthy watershed.

U.S. Army Corps of Engineers and Napa County Flood Control and Water Conservation District, Napa River/Napa Creek Flood Protection Project, Draft Supplemental General Design Memorandum, Volume I and II, December 1997. This document presents the results of engineering, design, and environmental studies conducted for a flood reduction project along the Napa River and Napa Creek. The majority of the project area is located in or adjacent to the City of Napa.

Technical and planning support to develop the Napa River and Napa Creek Flood Management Project included support from; the Corps of Engineers, the Napa County Flood Control and Water Conservation District, and the assistance of other Federal, State, and local agencies. Development of the Napa River and Napa Creek Flood Management Project further identified potential restoration sites in the Napa Valley watershed. Evaluation of these sites may be identified in the Napa Valley Watershed Management Feasibility Study

The Coastal Conservancy, with the support of Napa County, developed a wetlands enhancement study. The results of this study are being incorporated into the Napa River Flood Management Plan.

Napa River Federal Channel: A navigation channel extends from the city of Napa to Mare Island Strait near Vallejo, with authorized depths of 10 and 15 feet. The frequency of maintenance dredging is directly related to the sediment yield of the watershed. Since the Napa River navigation channel was completed in 1950, it has been dredged five times. Maintenance dredging in 1988 removed approximately 450,000 cubic yards.

The Corps of Engineers, Department of Fish and Game, and the Coastal Conservancy are developing a plan to convert approximately 8,000 acres of salt ponds to tidal wetlands in Napa Marsh. Napa Marsh is located at the confluence of the Napa River and San Pablo Bay. The U.S. Geological Survey and the University of California at Davis research project are providing assistance for this effort.

2.5. PLAN FORMULATION

a. National Objectives

1) The national or Federal objective of water and related land resources planning is to contribute to national economic development and to protect the nation's environment, pursuant to national environmental and economic statures, applicable executive orders, and other Federal planning requirements. Contributions to national economic development (NED) are increases in the net value of the national output of goods and services, expressed in monetary units. Contributions to NED are the direct net benefits that accrue in the planning area and the rest of the nation.

2) Another national objective for ecosystem restoration has been identified in response to legislation and administration policy. This objective is to contribute to the nation's ecosystems through ecosystem restoration, with contributions measured by changes in the amounts and values of habitat.

b. Public Concerns: A number of public concerns have been identified. Initial concerns were expressed in the study authorization. Additional input was received through coordination with the sponsor, and some initial coordination with other agencies. The public concerns that have been identified for this study include:

1) The Napa Valley is one of the most flood prone communities in California. A total of 27 significant floods have been reported along the Napa River since 1862. These flood events inundate large areas of the Valley floor. Damage estimated during the 1986 flood was at $100 million. Flooding is expected to continue in the watershed. The residents of Napa Valley were adversely affected in terms of significant economic loss by the 1995 and 1997 flood events due to unusually heavy rainfall in the winter and spring months.

2) The current status of the water quality in the watershed presents ecological problems. Due to poor water quality, the river and tributaries are listed as "impaired" for beneficial uses by the State Water Resources Control Board. Prominent water quality problems in the Napa Valley watershed include an increase in sedimentation and high nitrate and bacteria counts. Other ecological concerns in the watershed include groundwater quality and quantity. Future State Water Resources Control Board ratings for the Napa River as "impaired" will likely continue. It is important to improve the water quality of the Napa Valley watershed. Water quality parameters such as water temperature, dissolved oxygen and bacteria levels will continue to reflect the poor health of the watershed. Also, improvement in groundwater quality and quantity throughout the watershed needs to be addressed in the near future.

To address the above mentioned and other local, regional, and national watershed concerns, the Napa County Board of Supervisors appointed a Napa County Watershed Task Force (WTF) to identify community based and supported solutions. The WTF submitted their recommendation for further action to the Napa County Board of Supervisors. Preliminary watershed analysis is being completed with an understanding that additional scientific and technical decisions and solutions would be incorporated into the Napa Valley watershed plan. One of the recommendations being sent to the Board of Supervisors is the formation of a Napa Valley Watershed Conservancy (NVWC). The NVWC would administered by NCFCD and Napa County Planning Department to provide the structure and local involvement to identify the restoration goals and objectives for restoration in the Napa Valley watershed. The steps involved would include the following:

- *Watershed Inventory* - use existing information to identify restoration needs. If information is inadequate, undertake additional fieldwork to assess the health of the watershed.

- *Watershed Habitat Assessment* – establish goals to protect and restore the watershed through an assessment process to reach mutually agreed upon criteria as defined by the NVWC.

- *Watershed Protection and Restoration Criteria* - identify critical habitats and the criteria for the protection and restoration of these habitats. The NVWC would evaluate criteria to identify, evaluate, and prioritize critical restoration components. The criteria may include: important plant communities, wildlife corridors, habitat fragmentation, excessive erosion, water quality and quantity, healthy fisheries and wildlife populations, rare and endangered habitats - as well as species, and degraded habitats in the watershed in need of restoration. The process would support a detailed analysis of two or three of the more important streams in the watershed and the NVWC's effort to restore the watersheds based on the established criteria.

The NVWC would be comprised of key watershed stakeholders, including the Napa County Land Trust, Napa County Resource Conservation District, the Natural Resource Conservation Service, the Cities, the Board of Supervisors and six to twelve "at-large" members to represent agricultural, environmental, and development interest organizations. Also, regulatory and non-regulatory agencies such as, Environmental Protection Agency, U.S. Department of Fish and Wildlife, California Department of Fish and Game, Regional Water Quality Control Board, etc. would contribute to the process as members of a scientific and technical review panel.

3) The community and resource agencies place a high priority on sedimentation process when discussing the health of the Napa Valley watershed. Sedimentation (non-point source pollution) resulting from agricultural and urban runoff, adversely affects the health of aquatic habitat, the health of riparian areas, the health of wetlands, and the geomorphic stability of the waterways. On an economic and environmental scale, the quality and quantity of spawning and rearing habitat for several federally listed species including threatened steelhead and Coho salmon is adversely affected by sedimentation.

4) There is concern that the health of the Napa Valley watershed is also at risk due to an increase in vineyard and housing development activity. The Napa Valley Community is concerned that an increase in development on hillslopes would continue to contribute to a decrease in the water quality, the land, and the "viewshed", which all contribute to the valued biodiversity of the Napa Valley watershed. . It is thought that specific areas in the watershed are degraded due to water diversions and discharges into the system. Inadequate water depths would continue to create adverse effects on the temperature and dissolved oxygen levels of the channel, which would continue to adversely affect species rearing, spawning, and migration patterns. The local communities through the WTF grappled with these intense resource conflicts. The problems of rapid urbanization are often at odds with expansion of the lucrative wine grape industry. Both need clean water, and both affect water quality and create stiff competition for the water needed by the area's fish and wildlife.

The health of the Napa Valley watershed would continue to deteriorate if sedimentation control measures or ordinances are not effective. The expansion of hillslope development is expected to continue. Adverse effects due to urban and agricultural runoff would continue to degrade the water quality and hence adversely affect the economic, plant, and animal communities that rely on the watershed. Federal and State Listed Species would decrease in population due to the lack of habitat and the impaired health of the watershed.

c. Problems and Opportunities: The evaluation of public concerns often reflects a range of needs, which are perceived by the public. This section describes these needs in the context of problems and opportunities that can be addressed through water and related land resource management.

1) Restoration of degraded streams, rivers, wetlands, and other waterbodies to a natural condition as a means to control flooding, excessive erosion, and sedimentation.

Sedimentation (non-point source pollution), much of it resulting from agricultural and urban runoff, affects aquatic habitat, including the degradation of riparian areas, wetlands, and the geomorphic stability of the waterways. Sedimentation affects the quality and quantity of spawning and rearing habitat for several federally listed species including threatened steelhead and Coho salmon.

Opportunities may exist under the Corps authority for Watershed Management, Restoration and Development, Section 503 of the Water Resources Development Act of 1996, to evaluate the potential restoration of a particular habitat (e.g. aquatic and riparian habitat) in the ecosystem by tracking the natural migration of sediment.

2) Protection and restoration of watersheds including urban watersheds, and demonstrating technologies for nonstructural measures to reduce adverse affects of flooding.

Specific areas in the watershed are degraded due to historic flood events, diversions, and discharges into the system. Inadequate water depths create adverse effects on the temperature and dissolved oxygen levels of the channel, which adversely affect fish rearing, spawning, and migrations.

Flood damage reduction opportunities exist to economically benefit the watershed. These flood reduction opportunities would be part of the multi-objective restoration opportunities to prevent loss of property and to better manage the natural resources. There are several potential locations in the Napa Valley watershed where erosion due to high flows could be reduced with biotechnical and streambank stability techniques.

During periods of high rainfall and the associated runoff, alternative methods that slow or detain runoff would help meet this objective, for example:

On-site retention basins,
Silt barriers or silt fences in the case of new development and highway construction,
Storm water detention basins for residential and commercial development,
Erosion and sediment control through bank stabilization and revegetation of disturbed lands,
Stormwater discharge permits, and biotechnical streambank protection.

Corps authorities which may possibly apply include: Project Modifications for Improvement of Environment, Section 1135 of the Water Resources Development Act 1986 (in association with completed Corps projects); Aquatic Ecosystems Restoration, Section 206 of the Water Resources Development Act of 1996; and Flood Mitigation and Riverine Restoration, Section 212 of the Water Resources Development Act of 1999.

3) Management and restoration of water quality

Management practices associated with non-point source discharges have not been entirely effective in the past.

Opportunities exist to use technology that has demonstrated an ability to provide urban and rural detention areas that would greatly reduce non-point pollution. With the sensitive nature of the ecosystem, additional freshwater and saltwater fish communities may be lost if non-point discharge problems are not remediated. To decrease sedimentation of the waterways resulting from increases in urban and agricultural development, local and regional cooperation would be required to improve management practices.

d. Planning Objectives: The water and related land resource problems and opportunities identified in this plan are stated below as specific planning objectives to provide a focus for the formulation of alternatives. These planning objectives reflect the problems and opportunities and represent desired positive changes in the without project conditions. The planning objectives are specified as follows:

1) *To identify efficient flood protection and flood emergency access.*

2) *To identify restoration and/or non-structural flood protection projects in the County.*

3) *To address flood protection and watershed management needs.*

4) *To improve water supply and wastewater treatment operations and reduce potential effects on water quality*

5) *To assist the Napa County Watershed Task Force in addressing the Napa Valley Watershed resources needs*

e. Planning Constraints: Unlike planning objectives that represent desired positive changes, planning constraints represent restrictions that should not be violated. The planning constraints have been initially identified as follows:

1) *Compliance with local land use plans*

Napa County has been working to resolve some of their resource problems through local ordinances such as the Napa County Floodplain Management Ordinance 1996, Erosion Control Plans Regulation 1994, and the Napa County Resource Conservation Regulations. These laws are aimed at reducing erosion, protecting riparian corridors, and controlling stormwater runoff.

2) *Applicable Executive Orders, Statutes and Regulations*

All reports and documents would follow Corps of Engineer applicable executive orders, statutes, and regulations including: NEPA, CEQA, Clean Water Act Section 404 (b)(1), Endangered Species Act Section 7, California state water quality certification, and Clean Air Act Section 103.

f. Measures to Address Identified Planning Objectives. A management measure is a feature or activity at a site, which address one or more of the planning objectives. A wide variety of measures would be considered in light of applicable technical, economic, or environmental constraints. These measures would include categories, such as no-action, non-structural, structural, and separable features. Each measure would be assessed and a determination made regarding whether it should be retained in the formulation of alternative plans.

Restoration opportunities in the watershed would be further defined through the following tasks:

Evaluate ecological history: The historic ecology provides a picture of place and gives the community a better understanding of how they fit into the watershed and their influence on its health. It would provide the community with a visual image of their influences on the watershed and allow the local interests to have first hand involvement in plan development.

Sedimentation study: A sedimentation study would provide a watershed picture of sediment sources. The study would analyze fine sediments in stream channels and provide a qualitative assessment. The sedimentation study would evaluate stream bank erosion, loss of riparian zones, agricultural practices, gravel size, the effects of flow velocities and water quality.

Inventory of the existing water diversion structures: Water diversions would be inventoried to determine how they affect stream depths and stream velocities. The inventory would include an assessment describing potential effects the diversions have on summer flows.

Develop a watershed information system: A watershed information system would be an important tool for community understanding and evaluation of the watershed management plan. This information system would be open to all users and be supported by the community's collaborative process.

Hydraulic and hydrologic analysis: A hydraulic and hydrologic analysis would be conducted to evaluate shifts in peak flows. A hydrologic study of sections on the river/tributaries would provide valuable information on the effects of summer low flows with respect to temperature and oxygen levels.

Survey and mapping: Specific tributaries would be surveyed and mapped. The information collected would include data on soil type, geology, topography, vegetation, and other stream characteristics. This information would be useful for an overall view of the watershed and assist in developing priorities for future projects.

g. Preliminary Plans. Preliminary plans would be comprised of one or more management measures that survived an initial screening process. The descriptions and results of the evaluations of the preliminary plans would be presented in the final report as needed and as information is available from the development of the separable projects and the results of the Watershed Restoration Conservancy's evaluation.

Four areas of interest for the Napa Valley watershed management plan are noted below and include the St. Helena Area, the Yountville Area, the Calistoga Area, and Napa Valley Watershed Conservancy to evaluate future restoration opportunities. The problems and opportunities that have been identified are:

1) St. Helena Area: The City of St. Helena and the County of Napa completed a collaborative hydrology study and analysis along the Napa River. The study is examining flood protection and flood emergency access in the areas from Lodi Lane to Zinfandel Lane, including Sulfur Creek. The Corps watershed management plan would link with this effort to identify possible Federal financial participation in restoration and/or flood protection projects.

2) Yountville Area: In the case of the Yountville area, flood protection is being addressed. One effort is the Hopper Creek watershed stewardship development project led by the Napa County Resource Conservation District with the support of CALFED. Additionally, in a separate coordinated effort, the Town of Yountville and the County of Napa are collaborating on a flood protection plan for vulnerable properties in the Town and surrounding areas.

3) Calistoga Area: The watershed management plan could evaluate water supply reliability, flood protection and drainage improvement needs of the City of Calistoga as well as potential impacts to water quality. Tributary restoration including revegetation and channel stability may be included in the restoration and flood protection measures.

4) To provide the information and structure necessary to address the concerns in the watershed, the Watershed Information Center (WIC) would be used to disseminate research information and monitor the Conservancy's proposed restoration projects and other management initiatives in the watershed.

2.6. FEDERAL INTEREST

The proposed Napa Valley Watershed Management Feasibility Study (WMFS) would be consistent with existing Corps authorities and policy, including: the Northern California Streams Authority of Section 209 of the Flood Control Act of 1962, and Policy

Guidance Letter No. 61, Application of Watershed Perspectives to Corps of Engineers Civil Works, Programs and Activities. The proposed plan would provide high priority outputs including protection and restoration of fish and wildlife habitat, wetlands, and endangered species. The plan would likely result in further Corps activities under the following authorities:

> Project Modifications for Improvement of Environment, Section 1135 of the Water Resources Development Act 1986,
>
> Aquatic Ecosystems Restoration, Section 206 of the Water Resources Development Act 1996 and,
>
> Flood Mitigation and Riverine Restoration, Section 212 of the Water Resources Development Act of 1999.

The proposed plan is therefore in the Federal interest and consistent with current budgetary priorities.

2.7. PRELIMINARY FINANCIAL ANALYSIS

There is a number of regional funding opportunities related to watershed assessment and project development leading to restoration project(s). In March 2000, California voters passed two propositions, Propositions 12 and 13 to support water quality, flood protection, and water reliability projects. The Propositions and other State funding opportunities are expected to provide funds for the identification, development, and potential implementation of restoration projects in the Napa Valley watershed. In addition, matching funds may be available from a Napa County voter supported local bond measure. Measure A provides funds for designated restoration, flood protection, and water reliability projects for Napa County communities and unincorporated areas. Enclosure G identifies some of the Napa County watershed management activities currently being supported.

The non-Federal sponsor is the Napa County Flood Control and Water Conservation District (NCFCD). The attached Letter of Intent (Enclosure I), dated September 2, 1999, signed by Kenneth H. Johanson, District Engineer, indicates that the non-Federal sponsor is interested in proceeding with plan development and is willing to enter into negotiations for the feasibility phase. The NCFCD would provide the overall coordination for the development of the WMFS but would rely on the participation of other local agencies to provide input on issues within their jurisdiction. If a local agency moves forward with a spin off project with the Corps or other entities, that local jurisdiction would be responsible for project development and management.

2.8. SUMMARY OF FEASIBILITY STUDY ASSUMPTIONS

Application of the formulation, evaluation, coordination, and reporting procedures described in ER 1105-2-100, ER 200-2-2, and related planning phase guidance would be

clarified during the development of the Napa Valley Watershed Management Feasibility Study. The study process would allow for potential non-federal restoration projects to occur concurrently with the completion of the jointly developed watershed restoration plan.

2.9. FEASIBILITY PHASE MILESTONES

The Feasibility Phase milestones would include the following tentative dates:

Milestone	Description	Duration (mo)	Cumulative (mo)	Date
	Sign the FCSA			Apr 2001
Milestone F1	Initiate Management Feasibility Study	0	0	Apr 2001
Milestone F2	Public Workshop/Scoping	2	2	Jun 2001
Milestone F3	Feasibility Scoping Meeting – Identification of spin-off projects to be implemented as separate projects	18	20	Dec 2002
Milestone F4	Alternative Review Conference & Formulation Briefing	24	44	Dec 2004
Milestone F5	Draft Feasibility Report	15	59	Mar 2006
Milestone F6	Final Public Meeting	1	60	Apr 2006
Milestone F7	Feasibility Review Conference	1	61	May 2006
Milestone F8	Final Feasibility Report to SPD	3	64	Aug 2006
Milestone F9	DE's Public Notice	2	66	Oct 2006
-	Project Authorization	1	67	Nov 2006

2.10. FEASIBILITY PHASE COST ESTIMATE

The preliminary estimated cost of the feasibility study would be $5.5 million, which would consist of 50% Federal and 50% non-Federal participation. The study is scheduled to be complete in five years upon receipt of non-Federal sponsor and Federal funds. A detailed cost estimate would be included in the Project Management Plan.

WBS Code	**Project Tasks**	**Project Task Cost**
JAAOO	Surveying and Mapping	$725,000
JAB00	Hydrology and Hydraulics Studies	$830,000
JAC00	Geotechnical Design and Analysis	$720,000
JAE00	Engineering and Civil Design	$320,000
JBA00	Economic Analysis	$180,000
JBC00	Institutional Studies	$60,000
JC000	Real Estate Studies	$150,000
JD000	Environmental Studies	$300,000
JE000	Fish and Wildlife Studies	$180,000
JF000	HTRW Studies	$150,000
JG000	Cultural Resources Studies	$80,000
JH000	Cost Engineering	$100,000

JI000	Public Involvement	$520,000
JJ000	Plan Formulation	$325,000
JK000	Report Preparation/Printing	$80,000
JM000	Washington Level Review	$80,000
JPF000	Planning/Engineering Admin	$150,000
Z0000	Programs/Project Mgmt	$550,000
Total		**$5,500,000**

2.11. RECOMMENDATIONS

It is recommended that the Corps of Engineers proceed with the feasibility study for the Napa River Watershed under the authority of Section 209 of the Flood Control Act of 1962 (Northern California Streams), based on Federal interest and sponsor support.

2.12. POTENTIAL ISSUES AFFECTING INITIATION OF FEASIBILITY PHASE

At present, there are no identified issues that may affect the initiation of the feasibility phase.

2.13. VIEWS OF OTHER RESOURCE AGENCIES

State and federal resource agencies and the environmental community concur with the feasibility study process due to their support on other current Corps of Engineers watershed studies. Currently the Russian River Watershed Study and the San Pablo Bay Watershed Study are being facilitated as part of the Corps planning process.

While studies, consultations, and public involvement are being completed and incorporated into the Napa Valley Watershed Management Plan, it is expected that State and Federal agencies and the environmental community would support the implementation of restoration projects, with possible engineering solutions.

2.14. RECOMMENDATIONS

I recommend that the Napa Valley watershed plan proceed into the feasibility phase.

Peter T. Grass
Lieutenant Colonel, Corps of Engineers
District Engineer

2.15. CHANGES TO THE APPROVED SECTION 905(b) ANALYSIS.

a. The Section 905(b) Analysis was approved by Corps Headquarters on 10 April 2000.

b. The following revision(s) to the cost, schedule or scope have been made from the approved Section 905(b) Analysis as a result of final negotiations of the PMP and FCSA:

1) Paragraph 2.2, Purpose, was revised to clarify the range of the project area.
2) Paragraph 2.7, Preliminary Financial Analysis, was revised to include other funding opportunities and to clarify the role of the NCFCD.
3) Paragraph 2.9, Feasibility Phase Milestones, was revise to reflect the delay in signing the FCSA.
4) Several editorial corrections were made to Chapter II.

CHAPTER III – SCOPE OF WORK

The NCFCD and the Corps would manage the development of the WMFS, with input from watershed stakeholders. The planning process would serve as a decision-making framework for local, state, and federal agencies, and other interested stakeholders. Technical, planning, and design analysis would be provided to assist in the identification and evaluation of restoration and flood protection opportunities for potential implementation of structural and non-structural projects in the Napa Valley watershed. It is contemplated that interested local, state and federal agencies, non-profit groups, and other interested parties will cooperatively or independently implement spin off projects identified in the evaluation. If a spin off project(s) is identified for implementation, a study may be initiated that includes the appropriate level of planning and engineering detail, using information developed during the watershed analysis, as applicable. Study and project authorization, budget and cost sharing requirements, as appropriate, would be explained to potential sponsors. These spin-off projects may be implemented with the support of the Corps and/or other Federal, State, or local agencies, non- profits or private grant programs in accordance with existing authorities where possible or new authorities where necessary.

Watershed restoration opportunities may be implemented by the Corps and/or by others through existing authorities, such as the Civil Works Program of the Corps, the Watershed Protection and Flood Prevention Program of the Natural Resources Conservation Service, the Hazard Mitigation Grant Program of the Federal Emergency Management Agency, the Environmental Protection Agency and Water Quality Control Board Clean Water Act grant programs, as well as the Coastal Conservancy, the National Marine Fisheries Service, the Department of Fish and Game, local and private grant programs, etc. and through new authorities where necessary.

The NCFCD would coordinate the involvement of other stakeholder partners such as other local governmental jurisdictions, State resource agencies and private environmental entities that may request the assistance of the NCFCD and the Corps in technical, planning and design work to support watershed management activities and the potential future implementation of specific watershed projects. Most of the in-kind services will be provided by stakeholder partners to accomplish specific technical, planning and design work. One advantage of having the work for various entities developed, analyzed and evaluated through this process is to support appropriate and consistent standards. The NCFCD will require that any stakeholder partner interested in assistance enter into an agreement that commits the stakeholder partner to provide the local match, hold the NCFCD harmless and will set in writing the negotiated scope of work, schedule and financial arrangements. The NCFCD will oversee the process and provide the necessary administration support to stakeholder partners and for the development of the WMFS.

The WMFS would include the identification, review, refinement, and prioritization of restoration opportunities with an emphasis on restoration of the watershed's ecosystem (e.g.: important plant communities, healthy fish and wildlife

populations, rare and endangered habitats and species, and wildlife and riparian habitats). The WMFS would identify watershed wide benefits, such as restoration of the river and its tributaries, flood reduction, stream channel erosion control, sedimentation management, and pollution abatement. The feasibility study would provide the necessary technical, planning, and design analysis, as well as the scientific research and data analysis necessary to support the prioritization of restoration and flood protection opportunities within the watershed. For example, the study may include the preliminary hydrologic and hydraulic designs necessary to achieve stream channel geomorphic stability, as well as designs to sustain a healthy riparian corridor at the prioritized restoration sites. A sediment source evaluation may be necessary to identify and evaluate alternative solutions for watershed stability. One of the evaluation objectives would be to define the physical, economic, institutional and regulatory constraints in developing watershed restoration alternatives. The WMFS would be a flexible document, written to allow for changes in priorities as concerns and problems arise over time. This would ensure that the WMFS would be a dynamic, flexible plan providing opportunities for active use.

The technical, planning, and design efforts provided during the development of the WMFS would rely on a collaborative effort of watershed stakeholders. The activities and research of on-going efforts in the Napa Valley watershed and existing scientific and technical data would also be used to support the WMFS. New scientific and technical research could be undertaken as necessary to ensure that the appropriate data is available to support the restoration and flood protection goals of the local communities. Where research data is not available, data needs would be identified and pursued as appropriate to augment the existing information. The following tasks and sub-tasks identify the steps that would be taken during the planning process to complete the WMFS. The WMFS would provide the information necessary to develop candidate restoration and flood protection projects in Napa Valley watershed.

3.1 TECHNICAL, PLANNING, AND DESIGN REVIEW AND ANALYSIS

The Corps and the NCFCD would work collaboratively with the local community to support and provide the appropriate analyzes to support the restoration and flood protection goals and objectives of Napa Valley watershed communities.

Existing planning, scientific, and technical data would help identify the future goals and objectives for watershed health. The goals and objectives of watershed management tend to change over time, and they vary among watersheds, in response to changes in scientific understanding and public concerns. Watershed restoration would strive to improve habitats to sustain healthy populations of fish and wildlife and the geomorphic stability of the waterways, as well as flood protection, erosion control, sedimentation management, and pollution abatement, etc. Furthermore, assessing and evaluating the performance of ecological restoration projects, increasing the understanding of local watersheds, and protecting the beneficial uses of water would be supported during the development of the WMFS and local community outreach. The process would provide guidance for what type of restoration is wanted, what type of

restoration is needed, what type of ecology exists, and what are the methods to achieve the preferred restoration. The process would assist in establishing ecologically significant sub-watersheds and their restoration opportunities. The overall goal of these tasks would be to provide the technical, planning, and design analysis necessary to quickly and efficiently identify and prioritize restoration opportunities in the Napa Valley watershed.

There is an existing initiative for science support of watershed management. Through the Estuary Project of EPA, the multi-agency CalFed programs, and the Watershed Management Initiative of the State Water Resources Control Board and its San Francisco Bay Regional Board, a program has been initiated to coordinate basic watershed scientific assessment through the San Francisco Estuary Institute using the Bay Area Watershed Science Approach (WSA). The WSA integrates watershed science at all levels of government with local watershed interest groups. The WSA and other watershed efforts are opportunities for the Corps to coordinate with the existing community of agencies and watershed scientists.

The key to coordination is a shared understanding of watershed conditions. A watershed typology and GIS can help watershed scientists, managers, and the public organize their restoration goals. The WSA and its GIS partners are developing a public access, on-line source of maps, photos, data, and reports that can be used to visualize, analyze, and exchange information about watersheds. During the development of technical, planning, and design analysis for potential restoration projects, new and relevant data may be added to the existing WSA knowledge. The WSA with the involvement of the local community would provide a process for assessing the restoration potential in the watershed. The information would support the implementation of the Watershed Information Center (WIC), Section 3.1.12.2.

Each opportunity would be tailored to meet the local restoration and flood protection goals and objectives. These opportunities and potential projects would be planned in accordance with the "Living River Guidelines" as described in the Goals and Objectives for a "Living" Napa River System Based on Geomorphic, Water Quality and Habitat Considerations, prepared for the Community Coalition, July 2, 1996. The following categorical tasks and subsequent clarification of sub-tasks would meet the local objectives. These tasks would be performed as needed for each of the projects proposed by the NCFCD on behalf of an interested partner.

3.1.1 JAA00 Surveying and Mapping

Surveying and mapping may include the preliminary review and update of existing aerial photographs, topographic and GIS mapping for use by the local community and others to define historical and existing conditions. For example, a historical ecological inventory, including old USGS survey, exploration notes, diaries and archival information, and information from long-time watershed residents, of portions of the Napa River is being developed. This information would be augmented with new information as necessary to assist watershed residents in making long-term healthy watershed decisions. During the planning process, new technical information may be

needed, which may include general mapping of watershed attributes and surveying and aerial mapping of important features of the potential restoration projects. These features may include vegetation and groundcover, erosion sites, agricultural and other land conversions, etc.

The total cost for task JAA00 is listed in Chapter V.

3.1.2 JAB00 Hydrology and Hydraulic Studies

Hydrology and hydraulic investigations include identification of the baseline information on waterway dynamics would be completed, as necessary, for specific site analysis. Napa River and its tributaries flooding characteristics would be evaluated, as necessary, for the differences in tributary inflows, channel conditions and levee performance and other parameters that may influence flood conveyance. The WSA framework and other appropriate technical support may be incorporated into this effort. This may include an assessment and analysis of baseline conditions, rainfall and run-off discharge, erosion and sedimentation, water diversions, structural and non-structural stream stability, etc.

The total cost for task JAB00 is listed in Chapter V.

3.1.3 JAC00 Geotechnical Studies

The geotechnical investigation may include problem evaluation and the preliminary fieldwork necessary to determine potential design solutions. Technical support for groundwater investigations include groundwater quality and quantity, soil and bank stability for potential by-pass channels, flood terraces, excavation, and other construction considerations. There is an on-going investigation of a groundwater deficit area in the eastern slopes of the Napa Valley. Depending on the outcome of the investigation, an evaluation of recharge opportunities may be undertaken.

The total cost for task JAC00 is listed in Chapter V.

3.1.4 JAE00 Engineering and Design Studies

The engineering and design effort would evaluate potential opportunities for multi-purpose watershed benefits, such as restoration, flood reduction, erosion control, sedimentation management, and pollution abatement. Design efforts would coordinate the necessary technical elements to evaluate proposed restoration features. This may include the compilation of topographic surveys, vegetation mapping, water quality analyses, estimates of soil, concrete, etc. removal, habitat and wetland analyses, etc.

The total cost for task JAE00 is listed in Chapter V.

3.1.5 JB000 Socioeconomic Studies

Economic analyses would reveal changes in costs for increasing levels of environmental and economic outputs. This would ensure that a rational, supportable, focused, and traceable approach is used for considering and selecting restoration opportunities. An incremental cost analysis may be used to determine the most efficient and cost-effective alternatives for ecosystem restoration to support the decision-making process. The habitat criteria and values may be used to recommend management alternatives. The economic examination would assess the without-project and with-project alternatives.

The total cost for task JB000 is listed in Chapter V.

3.1.6 JC000 Real Estate Studies

Real Estate would provide a property ownership, acreages, estates (land rights to acquired to support the project) property evaluation of possible easement rights or acquisition of impacted lands, and an assessment of Land, Easements, Rights of way, Relocations, and Disposal Sites (LERRDs) requirements.

The total cost for task JC000 is listed in Chapter V.

3.1.7 JD000 Environmental Studies

Environmental studies include describing and assessing existing and future ecological, biological, and aesthetic conditions; assessing adverse and beneficial impacts of proposed projects through the use of a habitat analysis study. In addition, restoration and flood protection opportunities would consider aesthetic and environmental constraints for all proposed project features. This effort would be coordinated with other planning efforts at restoration opportunity sites.

The environmental studies would use accepted scientific habitat evaluation methods, i.e. Habitat Evaluation Procedure (HEP). Technical data analysis developed by WSA may be incorporated into the planning process. The environmental studies process would use existing information and new data, as necessary, to determine baseline conditions for wetland and riparian habitat, water quality, fish, wildlife, and endangered species habitat, etc. In-stream reservoirs, detention ponds, and other devises that limit migration would be evaluated for potential solutions to minimize the adverse impact.

The WMFS would identify problems and potential solutions for improving the health of the watershed. These problems and any subsequent problem resolutions identified during the watershed planning process would be developed in accordance with the requirements of the NEPA and the CEQA, the Clean Water Act Section 404 (b)(1), California water quality certification, and the Clean Air Act Section 103. An EIS and EIR process would be used, as necessary, to assess the effects of any problem resolutions. During the development of the WMFS, there would be consideration given to preparing a programmatic EIS/EIR that would serve as a supporting document for individual actions identified in the WMFS.

An evaluation of the water quality in the Napa River would be undertaken to provide the necessary evaluation of sedimentation, nitrate and dissolved oxygen levels and bacteria counts. The WMFS would assist local, State, and Federal agencies in the identification and evaluation of potential measures that would improve the water quality in the river and tributaries. Water reliability would be considered to ensure that adequate water supply is available for a healthy population of fish and wildlife. Also, sedimentation analyses would be used to determine the geomorphic stability of potential restoration sites in the watershed.

The total cost for task JD000 is listed in Chapter V.

3.1.8 JE000 Fish and Wildlife Coordination Act Report

The Corps and NCFCD would work with the Fish and Wildlife Service, as necessary, to ensure that any proposed restoration meets the objectives of the Fish and Wildlife Coordination Act and to identify information necessary to fulfill the requirements of the EIS/EIR process.

The total cost for task JE000 is listed in Chapter V.

3.1.9 JF000 Hazardous, Toxic, Radioactive Waste (HTRW) Studies

HTRW studies would include a survey and review of existing information on the presence of such HTRW sites that may be associated with potential restoration opportunities. Where such sites may be present in association with restoration opportunities, recommendations for further consideration will be presented. Project sites where HTRW is known to exist would be avoided as habitat restoration sites. This effort would be coordinated with agencies that may have a HTRW function. If an area requires clean-up, there are limits to Corps participation in such activities.

The total cost for task JF000 is listed in Chapter V.

3.1.10 JG000 Cultural Studies

Cultural investigation would be completed, as necessary, to evaluate the potential impact of recommended restoration activities on sites eligible for the National Register of Historic Places (Native American sites, Sonoma State Soscol Council), coordinated with the State Historic Preservation Office. All studies would be preformed to meet NEPA and Section 106 of the National Historic Preservation Act (1966) requirements.

The total cost for task JG000 is listed in Chapter V.

3.1.11 JH000 Design and Cost Estimates

The design effort would be at a sufficient level of detail necessary to evaluate potential project performance and cost. Cost evaluation of potential projects would provide both the Federal and non-Federal share in project development as appropriate and provide adequate information to ensure sound watershed management decisions.

The total cost for task JH000 is listed in Chapter V.

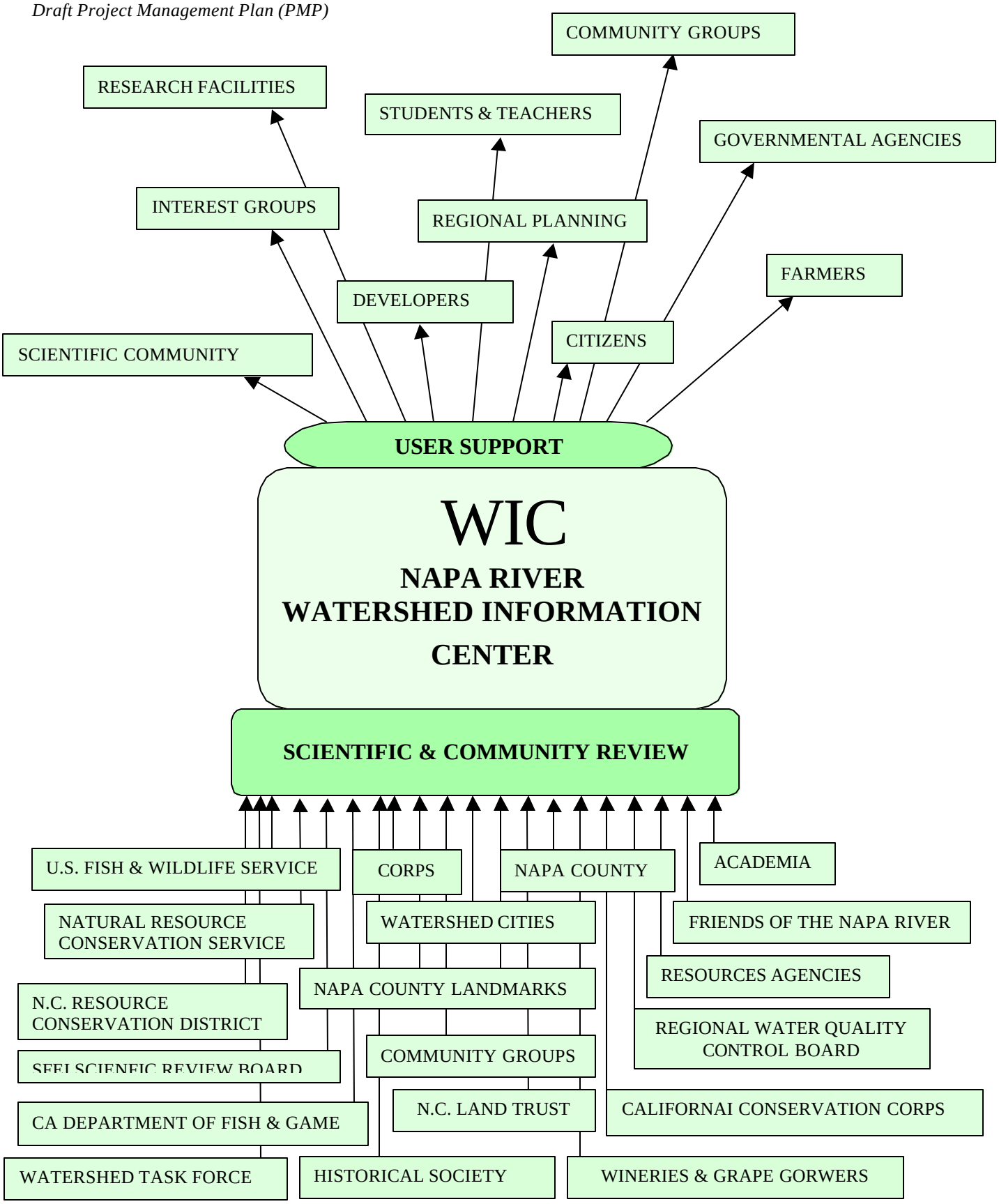
3.1.12 JI000 Public Involvement and Education

Public involvement is critical in the planning process and the National Environmental Protection Act/California Environmental Quality Act (NEPA/CEQA) process requires public involvement. Stakeholders in the Napa Valley watershed are implementing broadly supported multi-jurisdictional regional programs. To ensure there is collaboration and oversight, the WTF recommended that a Napa Valley Watershed Conservancy (NVWC) be established to prioritize land protection and restoration, review project implementation and provide other watershed oversight. The NVWC would be sponsored by Napa County to ensure broad local community involvement. NCFCD would work with Napa County in the development and coordination of the NVWC. It is anticipated that the NCFCD will be the conduit for evaluating the most applicable restoration and flood protection project requiring Corps involvement.

The NVWC would be comprised of key watershed stakeholders, including the members of the Napa County Land Trust, the Napa County Resource Conservation District, Natural Resource Conservation Service, the cities, Napa County, and six to twelve "at large" members to represent agriculture, environmental, and development interest organizations. In addition, the regional regulatory and non-regulatory agencies such as the Environmental Protection Agency, San Francisco Estuary Institute, San Francisco Bay Conservation and Development Commission, California Coastal Conservancy, California Department of Fish and Game, U.S. Fish and Wildlife Service and Regional Water Quality Control Board would contribute by supporting the Scientific and Technical Review Panel, see Chapter VI, Quality Control Plan.

3.1.12.1 JI000 -1 Public Involvement

The public involvement and education task would include public meetings, workshops, and briefings as well as the preparation and distribution of fact sheets and information papers to interested parties and local agencies. One of the goals of the public involvement task would be to work with other public agencies and local organizations to provide assistance to evaluate the restoration opportunities in the watershed and to coordinate with these efforts to ensure an efficient use of time and resources. Data on the Napa Valley watershed already exists and several inventory and assessment projects are underway and planned. Therefore, it is important to compile, organize, and manage past, present, and future information in a central location and to begin identifying, prioritizing, and filling critical data gaps in areas where sufficient data is lacking to make informed policy and land management decisions.


COMMUNITY GROUPS
RESEARCH FACILITIES
STUDENTS & TEACHERS
GOVERNMENTAL AGENCIES
INTEREST GROUPS
REGIONAL PLANNING
FARMERS
DEVELOPERS
SCIENTIFIC COMMUNITY
CITIZENS
USER SUPPORT
WIC
NAPA RIVER WATERSHED INFORMATION CENTER
SCIENTIFIC & COMMUNITY REVIEW
U.S. FISH & WILDLIFE SERVICE
CORPS
NAPA COUNTY
ACADEMIA
NATURAL RESOURCE CONSERVATION SERVICE
WATERSHED CITIES
FRIENDS OF THE NAPA RIVER
RESOURCES AGENCIES
NAPA COUNTY LANDMARKS
N.C. RESOURCE CONSERVATION DISTRICT
REGIONAL WATER QUALITY CONTROL BOARD
COMMUNITY GROUPS
N.C. LAND TRUST
CALIFORNAI CONSERVATION CORPS
CA DEPARTMENT OF FISH & GAME
WATERSHED TASK FORCE
HISTORICAL SOCIETY
WINERIES & GRAPE GORWERS

3.1.12.2 JI000-2 Napa River Watershed Information Center (WIC)

The WTF has recommended that a Watershed Information Center (WIC) be developed to disseminate research information and monitor the NVWC proposed restoration projects and other management initiatives in the watershed. The development of WIC would be sponsored by Napa County to support restoration and protection of the Napa Valley watershed through an open and freely accessible communication resource. The WIC would serve as the public outreach and education arm of the NVWC. The WIC can disseminate results from research and monitoring efforts that could track the NVWC's restoration and flood protection activities and other management initiatives in the watershed. The information would inform and engage the citizenry to promote the stewardship of the watershed, supporting a sustainable and healthy economy through an understanding and appreciation of the ecosystem and healthy and vibrant fish and wildlife habitats of critical concern. WIC would be used as an educational tool to inform the public that problems in the tributaries have a direct effect on the health of the Napa River. Unless a WIC is established, an effective comprehensive evaluation and syntheses of data and dissemination of information to interested parties would not be possible.

The total cost for task JI000-1 is listed in Chapter V.

3.1.12.3 JI000-3 Public Outreach Tools

This task would be sponsored by Napa County to promote an understanding of the past, present and future watershed protection and restoration efforts in Napa Valley watershed and to coordinate these efforts between Federal, State, and local agencies, non-profits, and other stakeholders. The coordination would assist in the development of WIC through data systemization, data quality assurance, and data collection coordination. Data systemization would enable the data to be stored in one location, integrating and merging multiple sources. Data quality assurance would assess data and provide a ranking system for the submitter to define the accuracy and consistency of the data. Dependent on the ranking, double check may be required. Data Collection Coordination would monitor and set protocols to provide a means to evaluate the reliability and accuracy of the data.

This effort would be supported by regional information organizations such as the Bay Model Association and the San Francisco Estuary Institute to provide a tool with interactive mapping and other watershed information for the public. This cooperative effort includes the RCD and other non- profits in the Napa Valley watershed. These efforts would develop the Geographic Information System (GIS) mapping as necessary to promote watershed involvement in the Napa Valley watershed. GIS is a computer-based system that allows information

including topographic, public policy, and land use issues to be mapped digitally for a quick comprehensive look at watershed conditions and functions.

To further the development of the WIC, a local group of interested community members had several meeting at the Napa County Resource Conservation District in 1999. The group developed a draft proposal, which was provided to Moore Iacofano & Goltsman, the consulting firm facilitating the WTF, and Jeff Redding, Napa County Planning Director. One of the goals is to inform the local community of responsible watershed management decisions to prevent management decisions from adversely impacting the health of the Napa River and its watershed and to help evaluate the ecology of the watershed. The draft proposal was incorporated into the Phase I and Phase II Watershed Task Force recommendations. The Napa County Board of Supervisors unanimously supported the recommendation to develop the WIC.

Public information tools may include:

- mailing list/database – A master mailing list would be developed to inform the public about upcoming meeting and events involving WMFS development. This process would include working closely with NVWC to augment existing outreach efforts.
- web page – A Napa Valley watershed website would be established on the Corps website to link with the Napa Valley WIC. This would assist in ensuring that interested parties have access to information as it is being developed. The web site would be linked to other web sites that have information relevant to the Napa River and the San Pablo Bay (e.g.: SFEI, EPA, RWQCB)
- media packet and multimedia presentations – Packets and news conferences with presentations would be arranged as appropriate for regional and national recognition of the cooperative regional restoration effort taking place.

The total cost for sub-task JI000-2 is listed in Chapter V.

3.2 SPECIFIC RESTORATION OPPORTUNITIES

Specific opportunities may be spun off as independent projects. The projects would be implemented by local agencies with the potential support of Federal, State, local agencies, NGOs or grant programs. Technical, planning, and design analysis would be provided to support project development, as necessary. A preliminary restoration report(s) may be developed from these opportunities to provide local communities with the preliminary information necessary to identify problems and opportunities for implementing multi-objective projects. The reports may be develop by the Corps or other agencies to support potential project development and implementation (see Enclosure H). The reports may include discussions of potential habitat creation, wetland enhancement, riparian restoration, stream stabilization, flood protection, recreation, education, and recommendations for avenues of implementation. The preliminary development and

identification of these opportunities would support defining project areas, collecting and reviewing preliminary technical data, conducting workshops, identifying problems and opportunities, completing preliminary design, identifying the preliminary environmental benefits associated with potential restoration opportunities, and defining the goals and objectives of feasible project alternatives. The potential restoration sites would be developed in cooperation with the NCFCD and other stakeholders and in accordance with the "Living River Guidelines" as described in the Goals and Objectives for a "Living" Napa River System Based on Geomorphic, Water Quality and Habitat Considerations, prepared for the Community Coalition, July 2, 1996.

Interested local, state and federal agencies, non-profit groups, and other interested parties can cooperatively or independently implement projects identified in the evaluation. If a specific project or projects are identified for implementation under an existing Corps authority, a study may be initiated that includes the appropriate level of planning and engineering detail, using information developed during the watershed analysis, as applicable. Cost sharing and other project needs would be explained to potential non-Federal sponsors, with the collaboration of NCFCD. A similar process would be followed if another agency/organization were to develop a project(s).

The following potential sites have been tentatively identified as potential candidates for multi-purpose restoration based on site availability, interested non-federal sponsor(s), and the local support needed to carry the designs forward into restoration implementation.

3.2.1 JA000-1 Napa River Corridor Restoration and Flood Protection Development

The restoration of the Napa River corridor would be undertaken to protect and restore the geomorphic stability of the river channel. Specific projects would be identified that would ensure the geomorphic integrity of the river to provide multi-purpose benefits, e.g.: flood protection, erosion control, sedimentation management, pollution abatement and/or environmental restoration. For example, the City of St. Helena with the support of the NCFCD is implementing a collaborative hydrology study and analysis along the Napa River. The study is examining flood protection measures and flood emergency access in the areas from Lodi Lane to Zinfandel Lane. The Corps and the NCFCD's watershed planning effort would assist in the evaluation of flood protection measures and identify possible Federal financial participation in the restoration and/or non-structural flood protection project(s).

The total cost for task JA000-1 is listed in Chapter V.

3.2.1.1 JA000-1.1 Preliminary Technical, Planning, and Design Analysis

This investigation may include assistance to complete the hydrologic, hydraulic, and sedimentation analyses necessary to determine stream channel stability and to identify potential point and non-point source pollutants that are entering the system. The technical, planning, and design analysis would evaluate

alternatives for achieving a geomorphically stable channel. In addition, the evaluation would provide information in a form that would allow the local community to understand and be able to identify problems in its watershed.

The total cost for task JA000-1.1 is listed in Chapter V.

3.2.2 JA000-2 Sulphur Creek Restoration and Flood Protection Development

An initial watershed assessment has been completed for Sulphur Creek to characterize existing geomorphic, hydrologic, riparian, aquatic habitat, and land-use conditions. Also, potential restoration opportunities have been identified. This data would support the restoration of Sulphur Creek including the reclamation of the former gravel mining operation.

The potential restoration of the riparian corridor would provide habitat for federally listed species, including steelhead trout. Technical, planning, and design analyses would define the appropriate design to maximize recovery and minimize costs. This information would be compiled and presented in a form that would facilitate the implementation of restoration projects as well as enable the local community and other interested parties to understand and support project development.

The total cost for task JA000-2 is listed in Chapter V.

3.2.2.1 JA000-2.1 Preliminary Technical, Planning, and Design Analysis

The technical support would determine the need, size and location of the necessary habitat for the potential restoration of the riparian corridor adjacent to Sulphur Creek. Coordination of the environmental review would examine the potential restoration of this area and identify potential point and non-point source pollutants that are entering the system.

The total cost for task JA000-2.1 is listed in Chapter V.

3.2.3 JA000-3 Hopper Creek Restoration and Flood Protection Development

The city of Yountville is interested in initiating restoration in the Hopper Creek watershed. The citizens of Yountville have identified Hopper Creek as a high priority watershed for protection and restoration, as well as needing a Napa River flood prevention components. Hopper Creek floods the adjacent homogeneous land use (primarily residential). The creek has native fisheries and extensive riparian areas with high value restoration opportunity. This information would be presented as a multi-objective restoration plan that would enable the local community and other interested parties to understand and support project development.

The total cost for task JA000-3 is listed in Chapter V.

3.2.3.1 JA000-3.1 Preliminary Technical, Planning, and Design Analysis

This investigation may include technical analysis to complete the hydrologic, hydraulic, and sedimentation analyses necessary to determine stream channel stability. The technical, planning, and design analysis would evaluate alternatives for achieving a geomorphically stable channel. In addition, the evaluation would provide information in a form that would allow the local community to understand and be able to identify problems in its watershed.

The total cost for task JA000-3.1 is listed in Chapter V.

3.2.4 JA000-4 Calistoga Flood Protection and River and Creek Restoration Development

The Napa River has overtopped its banks and flooded areas of the city of Calistoga including commercial and residential buildings, and adjacent roadways. Channel modifications on the Napa River and adjacent tributaries may be undertaken to restore the natural characteristics of the stream channel and provide flood protection for the City of Calistoga. The planning process would provide the necessary technical, planning, and design analysis to identify the potential multi-objective restoration opportunities on Napa River and its associated tributaries in and adjacent to the city of Calistoga. This process would be coordinated with a local community group to ensure that the community's needs, goals, and objectives are being identified and incorporated into the development of this restoration opportunity. This information would be compiled and presented in a form that would facilitate the implementation of restoration projects as well as enable the local community and other interested parties to understand and support project development.

The total cost for task JA000-4 is listed in Chapter V.

3.2.4.1 JA000-4.1 Preliminary Technical, Planning and Design Analysis

A hydrologic, hydraulic and sedimentation analysis may be completed to determine the appropriate channel modification to achieve a geomorphically stable channel. In addition, bank stabilization techniques would be investigated to incorporate local aesthetic and environmental goals.

The total cost for task JA000-4.1 is listed in Chapter V.

3.2.5 JA000-5 Angwin/Deer Park Flood Protection and Restoration

Conn Creek and its tributaries would be analyzed for flood and erosion protection in and adjacent to the community of Angwin and Deer Park. Water quality, water reliability, and stream bank stability would be part of the evaluation to determine the potential for restoration and other local needs. This analysis would have community input to ensure community support.

The total cost for task JA000-5 is listed in Chapter V

3.2.5.1 JA000-5.1 Preliminary Technical, Planning, and Design Analysis

This investigation may include technical analysis to complete the hydrologic, hydraulic, and sedimentation analyses necessary to determine stream channel stability. The technical, planning, and design analysis would evaluate alternatives for achieving a geomorphically stable channel. In addition, the evaluation would provide information in a form that would allow the local community to understand local needs.

The total cost for task JA000-5.1 is listed in Chapter V

3.2.6 JA000-6 Upper York Creek Dam Removal and Restoration

The removal of the Upper York Creek Dam would provide environmental benefits to the watershed ecosystem as well as direct benefits to York Creek for salmonid spawning and rearing habitat. Water quality, water reliability, and stream bank stability would be part of the evaluation to determine the alternatives that would address local needs. This analysis would involve the local community to ensure community support for the environmental improvements to York Creek. Because of local interest, the support of a non-Federal sponsor, and the extensive evaluation that has taken place, a proposed Restoration Plan for the Upper York Creek Dam Removal and Restoration Project has been included as Enclosure H. The information provided in Enclosure H is to facilitate project development. With an identified Federal interest, the Upper York Creek Dam Removal & Restoration Project could be authorized for implementation as a Corps of Engineers, Section 206, WRDA 1996, Aquatic Ecosystem Restoration Project.

The total cost for task JA000-6 is listed in Chapter V

3.2.6.1 JA000-6.1 Preliminary Technical, Planning, and Design Analysis

This investigation may include technical analysis to complete the hydrologic, hydraulic, and sedimentation analyses necessary to determine stream channel stability and sediment loading on down stream habitats. The technical, planning, and design analysis would evaluate alternatives for achieving a geomorphically stable channel. In addition, the evaluation would provide information in a form that would allow the local community to understand local needs.

The total cost for task JA000-6.1 is listed in Chapter V

3.3 FUTURE RESTORATION OPPORTUNITIES

The WTF submitted their recommendation for further action to the Napa County Board of Supervisors. One of the recommendations, as stated at WTF meetings, is the formation of a NVWC. The NVWC would provide the structure and local involvement for identifying the restoration goals and objectives in the Napa Valley watershed. The preliminary watershed analysis was completed by the WTF to support timely scientific and technical decisions. The information will be used in the development of the WMFS.

The Corps, NCFCD, the NVWC, and interested parties would use the information developed from the preceding tasks and the following tasks to identify future flood protection and/or restoration opportunities in the Napa Valley watershed. The information will be used in the development of the WMFS. These future opportunities shall be planned in accordance with the "Living River Guidelines" as described in the Goals and Objectives for a "Living" Napa River System Based on Geomorphic, Water Quality and Habitat Considerations, prepared for the Community Coalition, July 2, 1996. Non-federal sponsors for these future opportunities have not been identified at this time but the NCFCD or Napa County are confident that potential non-federal sponsors would be interested in restoration when the appropriate technical, planning, and design analyses are made available. The initial identified processes to achieve the stated objectives are:

- *Watershed Inventory* - use existing information to identify needs. If information is inadequate, undertake additional fieldwork to assess the health of the watershed.
- *Watershed Habitat Assessment* – establish criteria to protect and restore the watershed through an assessment process to reach mutually agreed upon goals as defined by the NVWC.
- *Watershed Protection and Restoration Criteria* - identify critical habitats and the criteria for their protection and restoration. The NVWC would evaluate criteria to identify critical restoration components, such as: important plant communities, wildlife corridors, prevention of habitat fragmentation, erosion prevention, water quality, maintain healthy fish and wildlife populations, protection of rare and endangered habitats, as well as species, identify degraded habitats in the watershed in need of restoration. Part of the task would be to identify two or three of the more important streams in the watershed and to support the NVWC's effort to restore the Napa River and it's tributary watersheds based on the established criteria.
- *Watershed Flood Protection and Other Management Needs* – identify flood protection, erosion control, sedimentation management, pollution abatement, and other water quality and watershed management needs to support environmental and economic sustainability.

The development of the WMFS would rely on the extensive existing scientific and technical information, the interest and cooperation of the local community in identifying restoration opportunities, the environmental benefits associated with restoration, the critical nature (urgency) of the restoration, and other factors as new issues arise during the evaluation process. To help define the restoration priorities and to ensure

that no negative environmental impacts result from a proposed restoration, the following tasks would be addressed in the planning process.

3.3.1 JI000-4. Establish Restoration Partnerships

To ensure the environmental integrity of the Napa Valley watershed, a higher priority would be placed on protecting and enhancing natural resources when balanced with water use for domestic, industrial, municipal, and agricultural consumption, as well as recreation, and aesthetic enjoyment. The concern about local declines in watershed health needs to be clearly stated and understood by most of the watershed interests. To establish watershed partnerships, active participation in the development of the WMFS would be sought. One of the goals of the NVWC is to develop and support these partnerships.

Watershed residents may not understand their influence on their home watersheds. It would be the purpose of this task to help residents understand the environmental history and changes that have taken place. One goal of partnerships would be to increase public awareness to help achieve the local and regional restoration goals and objectives. Through this iterative process, the potential for implementing near, mid, and long-term restoration opportunities would be greatly increased. These partnerships would foster participation in the identification of restoration opportunities and the local commitment to implement and monitor the environmental and economic values that the restoration would provide.

The total cost for task JI000-3.1 is listed in Chapter V.

3.3.2 JI000-5 Determine the Urgency of Future Restoration Opportunities

The Napa Valley watershed is under increased development pressure from urban uses (residential, commercial, and industrial) and more intensive agricultural uses (vineyards, orchards, and livestock). These uses need to be carefully planned to ensure the health of the Napa Valley watershed. The pressures of human activities warrant that a higher priority be given to restoration opportunities. Numerous factors would influence the identification and development of restoration sites. Therefore, these factors are expected to evolve over time, shifting priorities as unforeseen activities occur. Part of the evaluation process would determine the potential risks and benefits of different activities to the watershed's ecological stability.

Preferences should be placed on habitat types that are in greater need of restoration and protection. Preference should be given to the restoration of large sites, capable of providing the complexity of habitat, highest channel order, and ecosystem resilience. Also, a high priority would be placed on the benefits of potential restoration sites that have willing partners.

The total cost for task JA000-5 is listed in Chapter V.

3.3.3 JI000-6 Evaluate the Criteria Associated with Restoration Opportunities

Evaluation criteria would be established to eliminate potential restoration opportunities that are manifestly not technically feasible, do not meet established objectives, or which violate physical, economic, and institutional constraints. The screening process would evaluate the completeness, technical feasibility, ability to meet objectives of this study, and other evaluation criteria. The evaluation would ensure that the WMFS results are consistent and coordinated with appropriate policies and the overall desired outputs and programs

Environmental costs and beneficial outputs for each watershed restoration opportunity would be assessed. Costs may include a preliminary estimate of construction costs, land acquisition costs, and operation and maintenance costs. Environmental outputs would be measured in terms of habitat units using the U.S. Fish and Wildlife Service's Habitat Evaluation Procedures (HEP) or a similar process that has regional scientific and technical acceptance. A hydrogeomorphic classification of wetlands or other acceptable procedures would be considered as a supplemental method for evaluating the functional indices of wetland ecosystems.

The total cost for task JA000-6 is listed in Chapter V.

3.4 DOCUMENTATION AND MANAGEMENT

3.4.1 JJ000 Plan Formulation

Plan formulation would formulate the Plan with the NCFCD, NVWC, and other interested parties to identify management practices and potential restoration projects. Individual components of the Plan would be separable to the maximum extent possible to permit their implementation according to a timetable dictated by the abilities and resources of the responsible agencies.

The WMFS would analyze the tasks to define multi-objective restoration opportunities and evaluate the opportunities to ensure that they are consistent with the watershed goals and objectives. This would be an iterative part of the planning process. Preliminary technical, planning, and design documents would be developed, refined, reviewed, and ordered for potential restoration opportunities. The evaluation process would define the most cost-effective and productive combination of restoration opportunities.

The evaluation would occur at two levels: the assessment level and the appraisal level. The assessment-level evaluation would be the process of measuring or estimating the effects of restoration opportunities. It compares the difference between the without-project condition and with-project condition for each restoration opportunity. The appraisal-level evaluation would be the process of assigning social values to the technical information gathered and the completed assessment-level evaluation. Values would be

expressed in environmental output units. Cost effectiveness would ensure that the least cost solution would be identified for each possible level of environmental output.

The total cost for task JJ000 is listed in Chapter V.

3.4.1.1 JJ000 -1 Data Gap Analysis and Development

Existing planning, scientific, and technical data will be compiled in the WIC (see Section 3.1.1.2.1, Public Involvement) to support the identification and prioritization of restoration opportunities. Where research information is not available and data is necessary to further the restoration opportunities in the Napa Valley watershed, data would be collected to augment the existing information. The data would assist in the planning process to clarify the technical, planning, and design analysis necessary for restoration opportunities in the watershed. The analyses would provide the local entities (regulatory and non-regulatory agencies, non-profit groups, and other stakeholders) the framework to work together to develop a better understanding of the restoration potential in their watershed. To maximize support and the social value of this effort, the process would involve partnerships that engage different levels of government, scientific disciplines, and sectors of society. These partnerships would be integrated into this planning process to better serve the restoration goals and objectives in the watershed.

The total cost for task JJ000-1 is listed in Chapter V.

3.4.2 JL000 Final Watershed Management Feasibility Study Development

The results of the evaluation and prioritization of potential restoration opportunities would be presented in the final WMFS. The WMFS would integrate all of the recommendation for potential restoration and flood protection spin-off projects and other projects and products identified or developed during the course of the study. The WMFS would prioritize restoration projects and alternatives and be structured to allow for changes in priorities as concerns and problems arise over time. This iterative process would ensure that the WMFS would be a dynamic, flexible document providing opportunities for active use. The WMFS would include the appropriate appendices developed during plan development including a quantification of the environmental outputs and the environmental benefits to be achieved.

The total cost for task JL000 is listed in Chapter V.

3.4.3 JPA00 Program and Project Management

Program Management would include budget preparation for current year and out years, monitoring costs and accounting allocations. Project Management would include point of contact responsibilities, development and negotiation of the Project Cooperation Agreement (PCA), Memorandums of Agreement (MOA's) and other customer

agreements. Periodic meetings would be held between the Corps and the NCFCD to report on the status of the WMFS and responsibly for services and credits.

Project Management would provide monthly status reports covering selected financial and performance measurements. Responsibilities would include the finalizing of the plan network based on resource availability, and the maintenance and management of the network during the course of the study.

The Corps and NCFCD project managers would coordinate the management of negotiated cost sharing services. The Project Managers would review process, the cost-sharing procedures, and the management of budgets and schedules for the WMFS development. The negotiation of tasks and costs, review of reports, and participation in meetings results and issues are included in this task.

The Project Manager would establish, manage and maintain a study network to facilitate cost accounting and scheduling.

The total cost for task JPA00 is listed in Chapter V.

3.5. FUNCTIONAL ORGANIZATIONS

The scope of work represents agreements between the Project Manager and first line supervisors of functional organizations. The functions of these organizations in support of the project are defined by the work that is assigned. All organizations responsible for tasks, including the non-Federal sponsor(s) and other agencies, would be further clarified during the first year of the feasibility study. Broadly defined responsibilities are described in the cost estimates, Chapter V.

SAN FRANCISCO DISTRICT	ORG CODE
Planning Branch	CESPN-ET-P
Plan Formulation	CESPN-ET-PF
Environmental Planning & Science	CESPN- ET-PS
Economics	CESPN- ET-C
Real Estate	CESPK-RE
Engineering	CESPN-ET-E
Hydraulic/Coastal Engineering	CESPN-ET-EH
Civil Design	CESPN-ET-ED
Geotechnical Engineering	CESPN-ET-EG
Specs and Estimating	CESPN-ET-EE

NON-FEDERAL SPONSOR	ORG CODE
Napa County Flood Control and Water Conservation District	NCFCD
Napa County	NC
City of Napa	Napa
City of Calistoga	Calistoga
City of St Helena	St Helena
City of Yountville	Yountville

OTHER ORGANIZATIONS	ORG CODE
U. S. Fish and Wildlife Service	FWS
National Marine Fisheries Service	NMFS
Natural Resource Conservation Service	NRCS
Environmental Protection Agency	EPA
California Department of Fish and Game	F&G
State Coastal Conservancy	SCC
Regional Water Quality Control Board	RWQCB
Napa County Resource Conservation District	RCD
San Francisco Estuary Institute	SFEI
San Francisco Estuary Project	SFEP

3.6. RESPONSIBILITY ASSIGNMENT MATRIX

The scope of work for each task are grouped by the parent task that they support and the primary responsible organization for each parent task is identified by the organization codes in the following Responsibility Assignment Matrix (RAM). The NCFCD would coordinate and support the involvement of other local agencies in the development of the WMFS:

WBS Code	Project Tasks	Corps Org	Non-Federal	Other
JAAOO	Surveying and Mapping	CESPN-ET-EG	NCFCD or NC	All
JAB00	Hydrology and Hydraulics Studies	CESPN-ET-EH	NCFCD or NC	All
JAC00	Geotechnical Design and Analysis	CESPN-ET-EG	NCFCD or NC	All
JAE00	Engineering and Civil Design	CESPN-ET-ED	NCFCD or NC	All
JA000-1	Napa River Corridor Technical, Planning & Design (TPD) Analysis	CESPN-ET-PF CESPN-ET-EH	Varies	All
JA000-2	Sulphur Creek TPD Analysis	CESPN-ET-PF CESPN-ET-EH	St Helena	
JA000-3	Hopper Creek TPD Analysis	CESPN-ET-PF CESPN-ET-EH	Yountville	
JA000-4	Calistoga flood protection TPD Analysis	CESPN-ET-PF CESPN-ET-EH	Calistoga	
JA000-5	Angwin/Deer Park Flood Protection and Restoration	CESPN-ET-PF CESPN-ET-EH	NCFCD or NC	
JA000-6	Upper York Creek Dam Removal	CESPN-ET-PF CESPN-ET-EH	St. Helena	
JBA00	Economic Analysis	CESPN- ET-C	NCFCD or NC	
JBC00	Institutional Studies	CESPN- ET-PS	NCFCD or NC	
JC000	Real Estate Studies	CESPK-RE	NCFCD or NC	
JD000	Environmental Studies	CESPN- ET-PS	NC	All
JE000	Fish and Wildlife Studies	CESPN- ET-PS	NC	USFWS
JF000	HTRW Studies	CESPN- ET-PS	NCFCD or NC	All
JG000	Cultural Resources Studies	CESPN- ET-PS	NC	
JH000	Design and Cost Estimates	CESPN-ET-EE	NCFCD or NC	
JI000-1	Public Involvement	CESPN-ET-PF	NC	All
JI000-2	Napa River Watershed Information Center	CESPN-ET-PF	NC	All
JI000-3	Public Outreach Tools	CESPN-ET-PF	NC	All
JI000-4	Establish Restoration Partnerships	CESPN-ET-PF	NC	All
JI000-5	Urgency of restoration opportunities TPD Analysis	CESPN-ET-PF CESPN-ET-EH	NC	All
JI000-6	Criteria associated w/ restoration opportunities TPD Analysis	CESPN-ET-PF CESPN-ET-EH	NC	All

JJ000	Plan Formulation	CESPN-ET-PF	NCFCD or NC	All
JJ000-1	Existing Data Gap Analysis & Development	CESPN-ET-PF CESPN-ET-E	NC	All
JL000	Final Restoration Management Plan Documentation	CESPN-ET-PF	All	All
JM000	Washington Level Review	HQUSACE		
JP000	Contingencies	-	-	-
L0000	Programs/Project Mgmt	PPMD	NCFCD	
Q0000	PED Cost Sharing Agreement	PPMD	NCFCD	

CHAPTER IV – FEASIBILITY STUDY SCHEDULE

4.1. NON-FEDERAL SPONSOR COMMITMENTS

Milestones become commitments when the project manager meets with the non-Federal sponsor(s) at the beginning of each Fiscal Year and identifies two to five tasks that are important for the Corps and the non-Federal sponsor to complete during the Fiscal Year. These commitments would be flagged in a database and monitored and reported on accordingly.

4.2. MILESTONE SCHEDULE

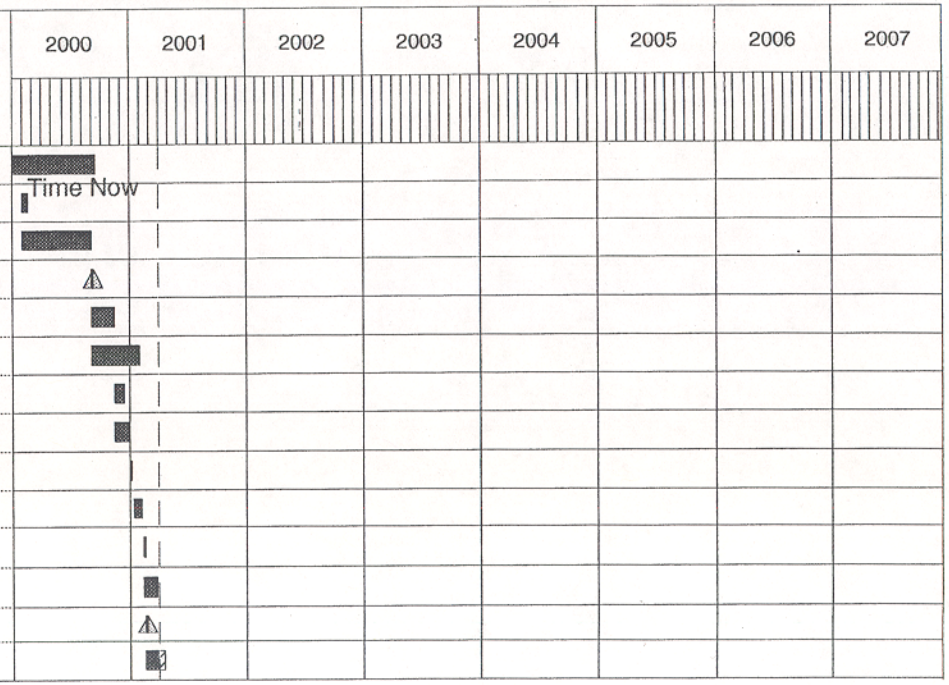
The schedule for the milestones would be as follows:

Milestone	Description	Baseline Schedule	Current Schedule
	Sign the FCSA	Apr 2001	
Milestone F1	Initiate Study – The date the district receives Federal and non-Federal feasibility phase study support.	Apr 2001	
Milestone F2	Public Workshop/Scoping - inform the public and obtain input, public opinions and fulfill scoping requirements for NEPA purposes.	Jun 2001	
Milestone F3	Feasibility Scoping Meeting – with HQUSACE to address potential changes in the PMP. It would establish without project conditions and screen preliminary plans.	Dec 2002	
Milestone F4 and F4A	Alternative Review Conference – evaluate and reach a consensus on final plans & Alternative Formulation Briefing - review of the proposed plan with HQUSACE	Dec 2004	
Milestone F5	Draft Feasibility Report – coordinate public review of the draft report	Mar 2006	
Milestone F6	Final Public Meeting	Apr 2006	
Milestone F7	Feasibility Review Conference - Policy compliance review of draft report with HQUSACE	May 2006	
Milestone F8	Final Feasibility Report to SPD - final report package to Division, including technical and legal certifications and compliance memorandum.	Aug 2006	
Milestone F9	DE's Public Notice – Public and Congressional notification, forwarded to HQUSACE	Oct 2006	
-	Chief's Report	Nov 2006	
-	Project Authorization		

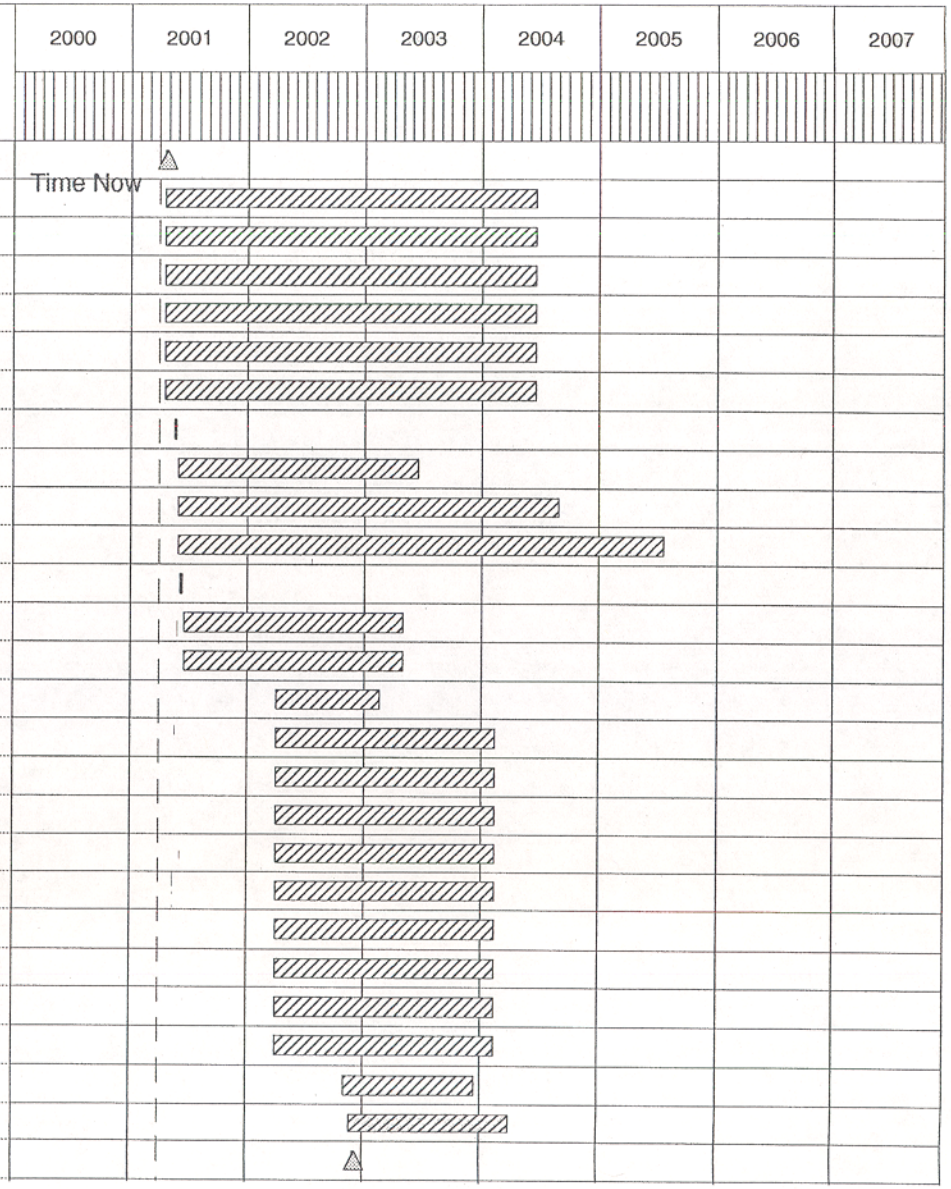
4.3. WORK BREAKDOWN STRUCTURE

All schedules are developed using a Network Analysis System (NAS). The network would be based upon the tasks listed in Chapter 3, Scope of Work. The product based Work Breakdown Structure identifies the project, sub-projects, parent tasks and tasks that would be accomplished during the development of the WMFS. Tasks are major separable elements of the WMFS that are keyed to separately identifiable products that are developed for the major feasibility study milestones. These tasks are elements of work resulting in a deliverable product and can be tracked with respect to cost and schedule. Tasks are activities that would be accomplished between milestone events. As tasks and subtasks are completed, they would be attached to this PMP in Enclosure C. The following table outlines the work breakdown structure by task duration:

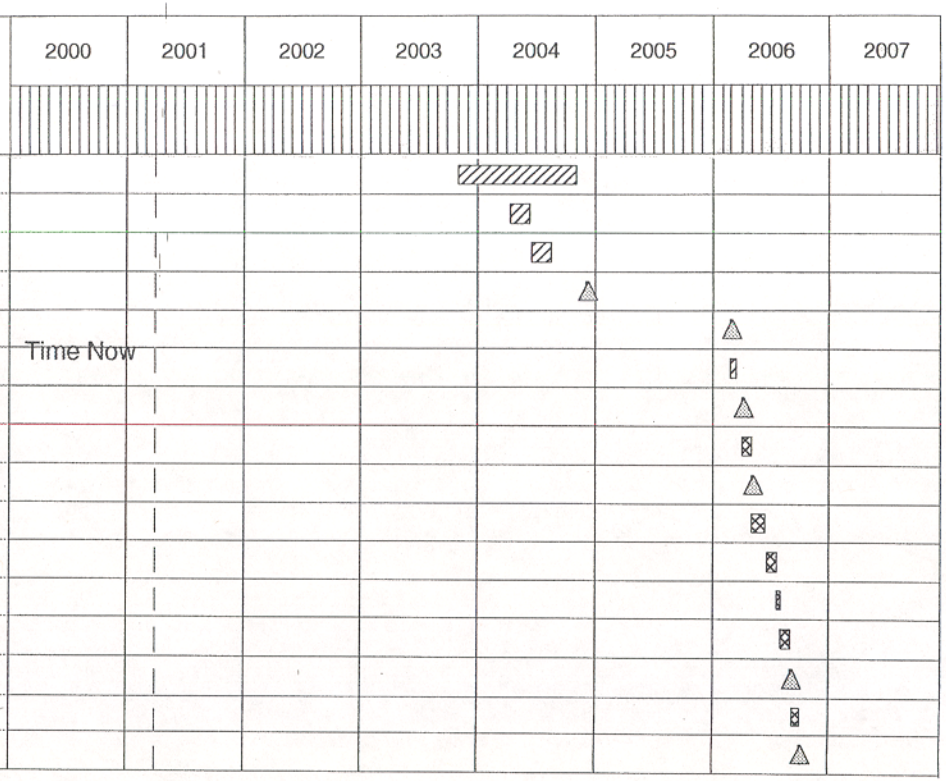
Act ID	Activity Desc.	Early Start	Early Finish
428	Reconnaissance Documentation	01Dec99	12Sep00
000343	Letter of Intent to Cost Share Feasibility Study	01Feb00	13Feb00
432	Prepare Draft 905(b) Appraisal & Fact Sheet	01Feb00	31Aug00
434	Submit Final 905(b) Appraisal	01Sep00	31Aug00
365	Prepare Draft Project Management Plan (DPMP)	04Sep00	13Nov00
363	Negotiate PMP	04Sep00	29Jan01
430	Finalize Draft PMP	15Nov00	12Dec00
367	Prepare for QC Review	15Nov00	28Dec00
00034W	QC Review	01Jan01	07Jan01
427	QCR & Memorandum	09Jan01	06Feb01
00034E	Feasibility Cost Sharing Agreement FCSA Negotiations	08Feb01	13Feb01
383	Finalize FCSA and PMP	08Feb01	25Mar01
431	Submit Final PMP to CESPD & FCSA Sponsor	14Feb01	14Feb01
000352	Sponsor Processing of FCSA	16Feb01	16Apr01



Act ID	Activity Desc.	Early Start	Early Finish
000353	FCSA Signed/Executed	17Apr01	17Apr01
476	Existing Data Gap Analysis & Development	17Apr01	16Jun04
479	Evaluate Criteria for Restoration Opportunities	17Apr01	16Jun04
480	Establish Restoration Partnerships	17Apr01	16Jun04
481	Public Involvement	17Apr01	16Jun04
482	Public Outreach Tools	17Apr01	16Jun04
483	Plan Formulation	17Apr01	16Jun04
366	Funds Transfer from Sponsor	17May01	23May01
478	Determine Urgency of Future Restoration Opportunities	31May01	17Jun03
485	Future Restoration Opportunities	31May01	27Aug04
484	Technical, Planning and Design Review & Analysis	31May01	18Jul05
507	[Milestone F2] Public Workshop	04Jun01	04Jun01
508	Prelim Tech, Plng & Des Analysis	15Jun01	01May03
501	Survey and Mapping	15Jun01	02May03
497	Real Estate Studies	01Apr02	17Feb03
493	Economic Analysis/Report	01Apr02	16Feb04
494	Recreational Studies	01Apr02	16Feb04
495	Cultural Studies	01Apr02	16Feb04
496	Engineering & Civil Design Analysis/Report	01Apr02	16Feb04
498	Geotech Design/Analysis	01Apr02	16Feb04
499	Hydrology and Hydraulics Studies/Reports	01Apr02	16Feb04
500	Environmental Studies/Report	01Apr02	16Feb04
502	HTRW Studies/Report	01Apr02	16Feb04
504	Cost Engineering Report	01Apr02	16Feb04
489	Prelim Tech, Plng & Des-Sulfur Creek	01Nov02	15Dec03
487	Prelim Tech Plng & Des Analy - Hopper Creek	21Nov02	01Apr04
515	[Milestone F3] Feas. Scoping Meeting	02Dec02	02Dec02



Act ID	Activity Desc.	Early Start	Early Finish
488	Prelim Tech, Plng & Des-Calistoga - Napa River Restoration	03Nov03	01Nov04
26	Public Review Comments (Draft Feas/EIS)	15Apr04	15Jun04
23	Final EIS/EIR	16Jun04	16Aug04
516	[Milestone F4] Alt. Review Conference	01Dec04	01Dec04
509	[Milestone F5] Draft Feasibility Report	01Mar06	01Mar06
369	Prepare for Final Public Meeting	01Mar06	14Mar06
27	[Milestone F6] Final Public Meeting	03Apr06	03Apr06
372	Identify Policy Issues	03Apr06	02May06
517	[Milestone F7] Feas. Review Conf (FRC)	01May06	01May06
373	Resolve Policy Issues	03May06	16Jun06
490	QC for Milestone F8	19Jun06	18Jul06
491	Final Prep for Milestone F8	19Jul06	02Aug06
492	Final Watershed Plan	03Aug06	31Aug06
355	[Milestone F8] Final Feasibility Report to SPD	31Aug06	01Sep06
505	Final Prep for Milestone F9	04Sep06	03Oct06
356	[Milestone F9] DE's Public Notice	03Oct06	03Oct06



Chapter V - COST ESTIMATE

The completion of the Napa Valley WMFS shall be cost-shared on a 50-50 basis between the Corps of Engineers and the non-Federal sponsor, NCFCD with the financial and technical assistance of local partners. The NCFCD would coordinate the funding for the WMFS and work with other local agencies to fund specific needs. The NCFCD would be responsible for transmitting all cost sharing services information and contract funding to the Corps, at the required times. The Corps' and the NCFCD's project managers would be jointly responsible for providing overall policy and general direction for the cost shared services, coordinating the in-house review of project tasks, resolving any comments produced by the in-house review and completing the project tasks to the satisfaction of both parties. The following table presents the WMFS by fiscal year, including description, cost and schedule for accomplishing tasks.

Napa Valley Watershed Management Feasibility Study Specific Cost Estimate Summary ($X1000)

Task No. and Description	SPONSOR IN-KIND FY 01	Corps FY 01	SPONSOR IN-KIND FY 02	Corps FY 02	SPONSOR IN-KIND FY 03	Corps FY 03	SPONSOR IN-KIND FY 04	Corps FY 04	SPONSOR IN-KIND FY 05-06	Corps FY 05-06	SPONSOR IN-KIND FY 05-06	Corps FY 05-06	Total
3.1 TECHNICAL, PLANNING & DESIGN ASSISTANCE													
3.1.1 JAA00 Surveying and Mapping Studies	0	50	50	250	40	50	60	60	0	0	10	10	580
3.1.2 JAB00 Hydrology and Hydraulic Studies	0	0	50	50	40	70	70	75	0	30	0	20	405
3.1.3 JAC00 Geotechnical Investigation	0	0	50	15	30	40	5	20	0	30	0	20	210
3.1.4 JAE00 Engineering and Design	0	0	0	0	40	10	20	20	10	10	10	10	130
3.1.5 JB000 Socioeconomic Studies	0	0	20	0	30	20	40	20	15	10	15	10	180
3.1.6 JC000 Real Estate Studies	0	0	20	0	20	20	20	20	10	10	10	10	140
3.1.7 JD000 Environmental Studies (including Environmental Certification)	60	0	85	0	40	40	60	40	20	40	30	60	475
4.1.8 JE000 Fish and Wildlife Coordination Act Report	0	0	0	0	0	10	0	10	10	10	20	10	70
3.1.9 JF000 HTRW Studies	0	0	0	0	0	10	0	10	10	10	10	10	60
3.1.10 JG000 Cultural Resources & Institutional Studies	0	0	0	0	0	0	40	10	20	5	20	5	100

Task No. and Description	SPONSOR IN-KIND FY 01	Corps FY 01	SPONSOR IN-KIND FY 02	Corps FY 02	SPONSOR IN-KIND FY 03	Corps FY 03	SPONSOR IN-KIND FY 04	Corps FY 04	SPONSOR IN-KIND FY 05-06	Corps FY 05-06	SPONSOR IN-KIND FY 05-06	Corps FY 05-06	Total
3.1.11 JH000 Design & Cost Estimates	0	0	10	0	15	20	20	20	30	20	30	10	175
3.1.12 JI000 Public Involvement and Education	0	0	0	0	0	0	0	0	0	0	0	0	0
3.1.12.1 JI000-1 Public Involvement	0	0	10	0	60	10	50	10	60	30	50	20	300
3.1.12.2 JI000-2 Watershed Information Center	0	20	30	20	60	10	70	110	60	30	50	20	480
3.1.12.3 JI000-3 Public Outreach Tools	10	0	75	10	35	20	15	10	0	0	0	0	175
3.2 SPECIFIC RESTORATION OPPORTUNITIES	0	0	0	0	0	0	0	0	0	0	0	0	0
3.2.1 JA000-1 Napa River Corridor Restoration	5	0	0	0	0	0	0	0	0	0	0	0	5
3.2.1.1 JA000-1.1 Preliminary Technical, Planning, and Design Analysis	0	0	0	0	0	0	0	0	0	0	0	0	0
3.2.2 JA000-2 Sulphur Creek Flood Protection & Restoration	0	0	0	0	10	0	0	0	0	0	0	0	10
3.2.2.1 JA000-2.1 Preliminary Technical, Planning, and Design Analysis	0	0	0	5	10	0	0	0	0	0	0	0	15
3.2.3 JA000-3 Hopper Creek Flood Protection & Restoration	0	0	10	0	0	0	0	0	0	0	0	0	10
3.2.3.1 JA000-3.1 Preliminary Technical, Planning, and Design Analysis	0	0	20	5	0	0	0	0	0	0	0	0	25
3.2.4 JA000-4 Calisotoga Flood Protection and River & Creek Restoration	0	0	0	0	0	0	10	0	0	0	0	0	10
3.2.4.1 JA000-4.1 Preliminary Technical, Planning, and Design Analysis	0	0	0	0	0	0	30	10	0	0	0	0	40
3.2.5 JA000-5 Angwin/Deer Park Flood Protection and Restoration	0	0	0	0	10	10	0	0	0	0	0	0	20

Task No. and Description	SPONSOR IN-KIND FY 01	Corps FY 01	SPONSOR IN-KIND FY 02	Corps FY 02	SPONSOR IN-KIND FY 03	Corps FY 03	SPONSOR IN-KIND FY 04	Corps FY 04	SPONSOR IN-KIND FY 05-06	Corps FY 05-06	SPONSOR IN-KIND FY 05-06	Corps FY 05-06	Total
3.2.5.1 JA000-5.1 Preliminary Technical, Planning, and Design Analysis	0	0	0	0	5	5	0	0	0	0	0	0	10
3.2.6 JA000-6 Upper York Creek Dam Removal and Restoration	5	5	0	0	0	0	0	0	0	0	0	0	10
3.2.6.1 JA000-6.1 Preliminary Technical, Planning, and Design Analysis	10	0	0	0	0	0	0	0	0	0	0	0	10
3.3 FUTURE RESTORATION OPPORTUNITIES	0	0	0	0	0	0	0	0	0	0	0	0	0
3.3.1 JI000-4 Establish restoration partnerships	0	0	10	10	10	10	15	20	30	5	20	5	135
3.3.2 JI000-5 Determine the urgency of future restoration opportunities	0	0	20	15	10	25	25	20	25	10	20	10	180
3.3.3 JI000-6 Evaluate the criteria associated with restoration opportunities	0	0	30	50	10	30	20	10	25	5	20	5	205
3.4 DOCUMENTATION & MANAGEMENT	0	0	0	0	0	0	0	0	0	0	0	0	0
3.4.1 JJ000 Plan Formulation	0	15	0	60	10	60	20	50	20	50	20	50	355
3.4.1.1 JJ000-1 Existing Data Gap Analysis & Development	0	0	85	50	90	60	25	20	5	5	0	0	340
3.4.2 JL000 Final Watershed Restoration Management Plan Development	0	0	0	0	0	0	10	10	20	20	35	40	135
3.4.3 JPA00 Programs and Project Management	10	10	25	50	25	60	25	65	30	60	30	65	455
JM000 Washington Level Approval	0	0	0	10	0	10	0	10	0	10	0	10	50
SUBTOTAL	100	100	600	600	600	600	650	650	400	400	400	400	0
TOTAL	200		1200		1200		1300		800		800		**5500**

Chapter VI - Quality Control Plan

6.1 QUALITY CONTROL PLAN OBJECTIVE

The quality control objective is to achieve feasibility phase documents and services that meet or exceed customer requirements, and are consistent with Corps policies and regulations. The WMFS would be to support watershed restoration by providing the preliminary technical, planning, and design analysis for specific restoration sites and other restoration opportunities in the Napa River watershed, as they are identified. Following the preliminary analysis, potential restoration projects would have a life of their own that may be completed under local and/or regional programs, such as Corps authorities: Section 206 WRDA 1996, Section 1135 WRDA 1986, and Section 212 WRDA 1999.

6.2 GUIDELINES FOLLOWED FOR TECHNICAL REVIEW

The quality control process requires that technical products are in compliance with applicable laws, regulations, and sound technical practices. The Quality Control Plan (QCP) would ensure an independent technical review process would be put in place to successful completion and delivery quality documents to the customer. Some of the goals of the QCP are to enhance the quality of decision and implementation documents through timely independent review, to reduce human resource requirements through timely review, to allow continuous in-progress review of documents, and to provide quality review without creating dedicated technical review positions. The guidelines for independent technical review are set forth in the South Pacific Division Quality Management Plan, CESPD R 1110-1-8, and in the corresponding San Francisco District's Quality Management Plan (QMP), CESPN OM 1110-1-12.

6.3 ROSTER OF PROJECT STUDY TEAM

A project study team has been formed to develop high quality decision documents. The Napa Valley Watershed Project Study Team would be as follows:

Napa Valley Watershed Project Study Team

TEAM MEMBERS	SYMBOL	AREA OF EMPHASIS
Dave Doak, engineer	CESPN-PE-ED	Civil Design
Ken Harrington/engineering geologist Steven Chen/soils engineer	CESPN-PE-EG	Geotechnical Engineering
Jay Kinberger, economist	CESPN-PE-C	Economics
Carl Hernandez, hydraulic engineer	CESPN-PE-EH	Hydraulic/Coastal Engineering
Susan Miller	CESPK-RE	Real Estate
Philip Pang, civil engineer	CESPN-PE-EE	Specs and Estimating
Karen Rippey, planner	CESPN-PE-P	Planning
Peter LaCivita, biologist	CESPN-PE-PS	Environmental Planning
Kathleen Ungvarsky, archeologist Yvonne LeTellier, biologist	CESPN-PE-PP	Environmental Studies
Napa County project manager	NCFCD/NC	Coordination

Napa County engineer	NCFCD/NC	Engineering
Napa County Planning	NC	Planning

The Project Study Team, the NCFCD and other non-Federal sponsors will participate in the development of the WMFS. It is contemplated that the Project Study Team will meet with the NCFCD, as needed, to ensure full participation in the progress of the WMFS. The Corps and the NCFCD will develop the priorities for the WMFS and related spin off projects, and assist in the development of the work plan for each year. As spin off projects are identified, it is understood that the participating public entity will collaborate with the Corps and the NCFCD to assist in the project development until the project is spun off under its own authority.

6.4 ROSTER OF THE SCIENTIFIC & TECHNICAL REVIEW PANEL

The WMFS would rely on collaborative partnerships to identify near, mid, and long-term potential restoration opportunities and provide the technical, planning, and design analysis necessary to foster project development. The nature of the WMFS would require that the Corps, the NCFCD, the non-Federal sponsor and partners, professional and scientific groups and other interested parties to work collaboratively to determine the best restoration alternatives for each potential restoration opportunity. This partnership would lead to extensive peer and technical review. An independent review team, not directly affiliated with the development of the plan documents, has been formed for the purpose of establishing clear criteria, principles, and professional procedures. The technical review includes the verification of assumptions, methods, procedures, and material used in analyses based on the level of complexity of the analysis. It verifies the alternatives evaluated, appropriateness of data used and levels of data obtained. It also verifies the functionality of the product and verifies the reasonableness of the results including whether the product meets the customers needs. To fulfill the technical review, a preliminary independent group of regional experts has been formed, as follows:

Napa Valley Watershed Management Feasibility Study Scientific and Technical Review Panel

REVIEW PANEL MEMBERS	SYMBOL	AREA OF EMPHASIS
Louise Vicencio	U.S. Fish and Wildlife Service	biologist
Josh Collins, Environmental Scientist	San Francisco Estuary Project	scientist
Nadine Hitchcock, San Francisco Bay Regional Director	Coastal Conservancy	coordination
Paul Jones, Biologist	Environmental Protection Agency	biologist
Mike Napolitano	Bay Area Regional Water Quality Control Board	scientist North Bay TMDL
Phil Blake, Director	National Resource Conservation Service	restoration
Jim Swanson, Environmental Services Supervisor	California Department of Fish and Game	biologist

In addition to extensive peer and technical review, the quality control process for the Napa Valley watershed management feasibility study would support the quality assurance program for data collection pertaining to watershed restoration and management developed by the Environmental

Protection Agency. It would be the expectation of the regional community of watershed science and management that all efforts to assess watershed health in the Bay Area would involve technical methods that permit one sub-watershed to be compared with another over time. The Corps would contribute to this effort by participating in the development of regional standard methods and approaches to watershed assessment to facilitate timely implementation of restoration projects.

The Project Study Team and the Scientific and Technical Review Panel would ensure that the collaborative process, promoting regional partnerships, fulfills the necessary quality control established during plan development. It would be the expectation of the San Francisco District that the quality control requirements would be met through the Corps' support of the existing regional network for science review of watershed assessment and restoration efforts and the review process outlined in this QCP. This collaboration would meet the objectives of the quality control process by providing the required technical oversight and would ensure that the schedule and milestones identified in the feasibility study would be adhered to. Documentation would be minimized when there is no controversy.

6.5 ROSTER OF TECHNICAL REVIEW SUPPORT

The low-risk nature of the process would enable the functional chiefs with the support of the Scientific and Technical Review Panel to provide the necessary technical review for the project study team. The functional chiefs would support the schedule and milestones requirements listed above, which are based upon information available at this time. The non-Federal sponsor supports the decision of the San Francisco District to use the above-described collaborative process to review study documents. The non-Federal sponsor requests that the Corps' review be minimized to meet the study timeframe and the local quality control objectives.
Detailed review and checking of the documents developed by the Project Study Team would be provided by the following technical review support in conjunction with the Scientific and Technical Review Panel.

Napa Valley Watershed Management Feasibility Study Technical Review Support

FUNCTIONAL CHIEFS	SYMBOL	AREA OF EMPHASIS
Tom Kendall	CESPN-ET-P	Planning Branch
Rod Chisholm	CESPN- ET-PS	Environmental Planning
Kevin Knight	CESPN- ET-C	Economics
Gary House	CESPK-RE-C	Real Estate
Herb Cheng	CESPN-ET-E	Engineering
Kevin Knuuti	CESPN-ET-EH	Hydraulic/Coastal Engineering
Arnold Lee	CESPN-ET-ED	Civil Design
Ken Harrington	CESPN-ET-EG	Geotechnical Engineering
Ken Kuhn	CESPN-ET-EE	Specs and Estimating

6.6 DOCUMENTS TO BE REVIEWED AND SCHEDULE FOR REVIEW ACTIVITES

a. All of the products of the tasks listed in the detailed scope of work in Chapter III, Scope of Work, would be subject to independent technical review. Seamless Single Discipline Review would be accomplished prior to the release of materials to other members of the study team or integrated into

the overall plan. Section chiefs shall be responsible for accuracy of the computations through design checks and other internal procedures, prior to the independent technical review.

b. Quality Control review would meet the schedule and milestone dates identified in Chapter IV. Independent product review would occur prior to major decision points in the planning process at the CESPD milestones so that the technical results can be relied upon in setting the course for further study. These products would include documentation for the South Pacific Division (CESPD) mandatory milestone conferences (F3 & F4), Headquarters, U.S. Army Corps of Engineers, (HQUSACE) issue resolution conferences (F4A & F7) and the draft and final reports. These products shall be essentially complete before review is undertaken. Since this quality control would have occurred prior to each milestone conference, the conference is free to address critical outstanding issues and set direction for the next step of the study, since a firm technical basis for making decisions would have already been established. In general, the independent technical review would be initiated at least two week prior to a CESPD mandatory milestone conference and at least two weeks prior to the submission of documentation for a HQUSACE issue resolution conference.

c. For products that are developed under contract, the contractor would be responsible for quality control through an independent technical review. Quality assurance of the contractor's quality control would be the responsibility of the district.

ENCLOSURE A - NAPA VALLEY WATERSHED MAP

ENCLOSURE B - LISTED SPECIES

Both the State of California and the Federal government maintain formal lists of endangered, threatened, and candidate species under the authorities of the respective Endangered Species Acts. In addition, both levels of government have informal lists to watch species, which are being reviewed for possible formal listing as threatened or endangered.

The California Department of Fish and Game (CDFG) also lists rare plants and tracks a number of "special animals" through the California Natural Diversity Data Base (CNDDB). In addition, the California Native Plants Society (CNPS), a non-governmental conservation organization, has developed lists of native California plants that it identifies as rare or endangered.

The species listed below indicate the category and the species type.

PLANT SPECIES

a. Formal

- Mason's lilaeopsis (Lilaeopsis masonii) is a state rare species and a federal species of concern.
- Soft Bird's-beck (Cordylanthus mollis ssp sollis) is a state-listed as rare and is proposed for listing federally as an endangered species.
- Contra Costa goldfields (Lasthenia conjugens) is a federal proposed endangered species and on the CNPS list.

b. Informal

- Suisun Marsh aster (Aster lentus) is a federal species of concern and on the CNPS list.
- Alkali milk-vetch (Astragalus tener var. tener) is on the CNPS list.
- San Joaguin saltbush (Atriplex joaquiniana) is a federal species of concern and on the CNPS list.
- Point Reyes bird's-beak (Cordylanthus maritimus ssp. Palustris) is a federal species of concern and on the CNPS list.
- Dwarf downingia (Downingia Pusilla) is in the CNPS list.
- Fragrant Fritillary (Fritillaria liliacea) is a federal species of concern and on the CNPS list.
- Delta tule pea (Lathyrus jepsonii var. jepsonii) is a federal species of concern and on the CNPS list.
- Legenere (Legenere limosa) is a federal species of concern and on the CNPS list.
- Marin knotweed (Polygonium marinense) is a federal species of concern and on the CNPS list.
- Rayless ragwort (Senecio aphanactis) is on the CNPS list.

ANIMAL SPECIES

a. Formal

- California Freshwater shrimp (Syncaris pacifica) is a federally and state-listed endangered species.
- Winter-run Chinook Salmon (Oncorhynchus tshawytscha) is a federally and state-listed endangered species.
- Delta Smelt (Hypomesus transpacificus) is a federally and state-listed theatened species.

- Tidewater Goby (Eucyclogobius newberryi) is a federally listed endangered species and a CDFG species of special concern.
- Sacramento Splittail (Pgonichthys macrolepidotus) is a proposed federal listing as threatened.
- Steelhead (Oncorhynchus mykiss) is federally listed as threatened.
- California Brown Pelican (Pelecanus occidentalis) is a federally and state-listed endangered species.
- California Black Rail (Laterallus jamaicensis) is state-listed as threatened and a federal species of concern.
- California Clapper Rail (Rallus longirostris) is a federally and state-listed endangered species.
- Western Snowy Plover (Charadrius alexandrinus) is a federally listed threatened species and a CDFG species of special concern.
- American Peregrine Falcon (Falco Peregrinus) is a federally and state-listed endangered species.
- Salt Marsh Harvest Mouse (Reithrodontomys raviventris) is a federally and state-listed endangered species.

b. Informally

- Double-crested Cormorant (Phalacrocorax auritus) is on the CDFG list of species of special concern.
- Great Blue Heron (Ardea herodias) is tracked by the CNDDFB.
- Black-crowned Night Heron (Nycticorax nycticorax) is tracked by the CNDDB.
- Golden Eagle (Aquila chrysaetos) is a CDFG species of special concern and is specifically protected by the Bald Eagle Protection Act as amended.
- Northern Harrier (Circus cyaneus) is a CDFG species of special concern.
- White-tailed Kite (Elanus leucurus) is tracked by the CNDDB.
- Osprey (Pandion haliaetus) is a CDFG species of special concern.
- Long-billed Curlew (Numenius americanus) is a CDFG species of special concern.
- Caspian Tern (Hydroprogne caspia) is a CDFG species of special concern.
- Foster's Tern (Sterna forsteri) nesting colonies are tracked by the CNDDB.
- Short-eared Owl (Asio flammeus) is a CDFG species of special concern.
- Burrowing Owl (Speotyto cunicularia) is a federal species of concern and is a CDFG species of special concern.
- California Horned Lark (Eremophila alpestris) is a CDFG species of special concern.
- Loggerhead Shrike (Lanius ludovicianus) is a CDFG species of special concern.
- Tricolored Blackbird (Agelaius tricolor) is a federal species of concern and is a CDFG species of special concern. The CNDDB reports nesting colonies in San Pablo Bay watershed.
- Salt Marsh Common Yellowthroat (Geothlypis trichas) is a federal species of concern and is a CDFG species of special concern.
- Suisun Shrew (Sorex sinosus) is a CDFG species of special concern.
- Monarch butterflies (Danaus plexippus) winter roost is tracked by the CNDD

ENCLOSURE C – COMPLETION OF PROJECT TASKS

The tasks identified in Chapter 3, Scope of Work, and Chapter 4, para.3, Work Breakdown Structure, would provide the structure for the development of the WMFS. As specific tasks are complete, they would be attached to Enclosure C to keep on-going documentation of work being completed during the development of the WMFS.

WBS#	DESCRIPTION
J0000	**Feasibility Report (Feas)**
J0000	**Milestones**
	Initiate Feasibility Phase
	Feas Study Pub Workshop (F2)
	Feas Study Conf #1 (F3)
	Feas Study Conf #2 (F4)
	Date of AFB
	Public Review of Draft Report
	Final Public Meeting
	Feasibility Review Conference
	Feasibility Report w/ NEPA
	MSC Commander's Public Notice
	Filing of Final EIS/EA
	Chief's Report to ASA (CW)
	ROD Signed or FONSI Signed
	President Signs Authorization
JA000	**Engineering Appendix**
JAA00	**Feas-Surveys and Mapping except Real Estate**
	Surveys and Mapping -without Project Conditions
	Mapping - with Project Conditions
	Mapping - AFB documentation
	Mapping - Draft Report
	Mapping - Final Report
JAB00	**Feas -Hydrology and Hydraulics Studies/Report (Coastal)**
	H&H –without Project Conditions & Preliminary Plans
	H&H - with Project Conditions for Final Plans
	H&H - AFB documentation
	H&H - Draft Report
	H&H- Final Report
JAC00	**Feas - Geotechnical Studies/Report**
	Geotech –without Project Conditions & Preliminary Plans
	Geotech – with Project Conditions for Final Plans
	Geotech – AFB documentation
	Geotech – Draft Report
	Geotech – Final Report
JAE00	**Feas – Engineering and Design Analysis/Report**
	Engr & Design – without Project Conditions & Preliminary Plans
	Engr & Design – with Project Conditions for Final Plans

	Engr & Design – AFB documentation
	Engr & Design –Draft Report
	Engr & Design – Final Report
JB000	**Feas – Socioeconomic Studies**
	Socioecon – without Project Conditions & Preliminary Plans
	Socioecon – with Project Conditions for Final Plans
	Socioecon – AFB documentation
	Socioecon – Draft Report
	Socioecon – Final Report
JC000	**Feas - Real Estate Analysis/Report**
	Real Estate – without Project Conditions & Preliminary Plans
	Real Estate – with Project Conditions for Final Plans
	Real Estate – AFB documentation
	Real Estate – Draft Report
	Real Estate – Final Report
JD000	**Feas –Environmental Studies/Report (Except USF&WL)**
	Environ – without Project Conditions & Preliminary Plans
	Environ – with Project Conditions for Final Plans
	Environ – AFB documentation
	Environ – Draft Report/EIS
	Environ – Final Report/EIS
JE000	**Feas - Fish and Wildlife Coordination Act Report**
	USFWS – Planning Aid Letter
	USFWS – Draft Coordination Act Report
	USFWS –Final Coordination Act Report
JF000	**Feas – HTRW – Studies/Report**
	HTRW – without Project Conditions & Preliminary Plans
	HTRW - with Project Conditions for Final Plans
	HTRW - AFB documentation
	HTRW - Draft Report/EIS
	HTRW - Final Report/EIS
JG000	**Feas - Cultural Resources Studies/Report**
	Cultural – without Project Conditions & Preliminary Plans
	Cultural - with Project Conditions for Final Plans
	Cultural - AFB documentation
	Cultural - Draft Report
	Cultural - Final Report
JH000	**Feas - Cost Estimates**
	Cost Estimates – without Project Conditions & Preliminary Plans
	Cost Estimates - with Project Conditions for Final Plans
	Cost Estimates - AFB documentation
	Cost Estimates - Draft Report
	Cost Estimates - Final Report
JI000	**Feas - Public Involvement Documents**

	Initial Public Meeting/NEPA Scoping
	Public Workshops in Support of Plan Selection
	Public Involvement Support to AFB
	Final Public Meeting
	Public Involvement Support to FRC
JJ000	**Feas - Plan Formulation and Evaluation**
	Plan Formulation of Preliminary Plans
	Plan Formulation for Final Plans
	Plan Formulation - AFB documentation
	Plan Formulation - Draft Report
	Plan Formulation - Final Report
	Plan Formulation - Support to Division Commander's Notice
JL000	**Feas - Final Report Documentation**
	Reproduction and Distribution of F3 Documentation
	Reproduction and Distribution of F4 Documentation
	Reproduction and Distribution of AFB Documentation
	Reproduction and Distribution of Draft Report
	Reproduction and Distribution of Final Report
JLD00	**Feas - Technical Review Documents**
	Independent Technical Review - F3 Documentation
	Independent Technical Review - F4 Documentation
	Independent Technical Review - AFB Documentation
	Independent Technical Review - Draft Report
	Independent Technical Review - Final Report
JM000	**Feas - Washington Level Report Approval (Review Support)**
JP000	**Feas - Management Documents**
JPA00	**Project Management and Budget Documents**
	Programs and Project Management to F3 Milestone
	Program and Project Management to F4 Milestone
	Program and Project Management - AFB documentation
	Program and Project Management - Draft Report
	Program and Project Management - Final Report
	Program and Project Management - DE's Notice
JPB00	**Supervision and Administration**
	S&A - Planning Division
	S&A - Engineering Division
	S&A - Real Estate Division
	S&A - PPMD
	S&A - Contracting Division
JPC00	**Contingencies**
L0000	**Project Management Plan (PMP)**
	PMP -Draft PMP
	PMP- Final PMP
Q0000	**PED Cost Sharing Agreement**

ENCLOSURE D - LIST OF ACRONYMS

AE	Architectural and Engineering
AFB	Alternative Formulation Briefing
ASA (CW)	Assistant Secretary of the Army for Civil Works
CAP	Continuing Authorizes Program
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESPD	South Pacific Division
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plants Society
Corps	U.S. Army Corps of Engineers
DE	Division Engineer (Division Commander)
EA	Environmental Assessment
EC	Engineering Circular
EIS	Environmental Impact Statement
EP	Engineering Pamphlet
EPA	Environmental Protection Agency
ER	Engineering Regulation
FCSA	Feasibility Cost Sharing Agreement
FONSI	Finding of No Significant Impact
FRC	Feasibility Review Conference
FWS	U.S. Fish and Wildlife Service
GIS	Geographic Information System
GDM	General Design Memorandum
H&H	Hydrology and Hydraulics
HEP	Habitat Evaluation Procedure
HQUSACE	Headquarters, U.S. Army Corps of Engineers
HTRW	Hazardous, Toxic and Radioactive Waste
IRC	Issue Resolution Conference
LERRDs	Land, Easements, Rights of Way, Relocations, Disposal Sites
MOA	Memorandum of Agreement
MST	Milliken-Sarco-Tulocay [Creeks]
MSC	Major Subordinate Command
NAS	Network Analysis System
NCFCD	Napa County Flood Control & Water Conservation District
NCPD	Napa County Planning Department
NED	National Economic Development
NEPA	National Environmental Policy Act
NGO	Non Governmental Organizations
NVWC	Napa Valley Watershed Conservancy
OBS	Organizational Breakdown Structure
P&G	Water Resources Council's Principles and Guidelines
PCA	Project Cooperation Agreement
PED	Planning Engineering and Design
PMP	Project Management Plan

PPMD	Programs and Project Management Division
PROMIS	Project Management Information System
QCP	Quality Control Plan
RAM	Responsibility Assignment Matrix
RCD	Resource Conservation District
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board
S&A	Supervision and Administration
SFEI	San Francisco Estuary Institute
SPD	South Pacific Division (CESPD)
TPD	Technical, Planning, and Design
USF&WL	U.S. Fish and Wildlife Service
WBS	Work Breakdown Structure
WIC	Watershed Information Center
WMFS	Napa Valley Watershed Management Feasibility Study
WRDA	Water Resources Development Act
WSA	Watershed Science Approach
WTF	Napa County Watershed Task Force

ENCLOSURE E - GUIDANCE DOCUMENTS
CORPS OF ENGINEER AND LOCAL REFERENCE DOCUMENTS

POLICY: The policies that govern the development of projects are contained in the DIGEST OF WATER RESOURCES POLICIES AND AUTHORITIES, EP 1165-2-1.

CORPS REGULATIONS: All of the Corps' current regulations are included on the HQUSACE homepage. The most important of these regulations is ER 1105-2-100, PLANNING GUIDANCE. Policy compliance review is addressed in EC 1165-2-203, TECHNICAL AND POLICY COMPLIANCE REVIEW. And, quality control is covered in the CESPD Quality Management Plan, CESPD R 1110-1-8. The review of the products would be accomplished with the review checklist that is provided in EC 1165-2-203 as Appendix B, POLICY COMPLIANCE REIVEW CONSIDERATIONS. Most of the documents that would be used in the formation of the plan are listed below:

CECW-A EC 1165-2-203 dtd 15 Oct 96	Technical Policy Compliance Review
CESPD-R 1110-1-8 dtd 30 Jun 97	Quality Management Plan
CESPN OM 1110-1-12 dtd 27 Feb 98	Planning, Engineering, Construction Operations, and Real Estate Quality Management Plan
EC 1105-2-214 dtd 30 Sep 97	Project Modifications for Improvement of the Environment and Aquatic Ecosystem Restoration
EC 1110-2-291 dtd 31 Oct 97	Engineering and Design Stability Analysis of Concrete Structures
EC 1165-2-203 dtd 15 Oct 96	Technical and Policy Compliance Review
EI 01D010 dtd 01 Sep 97	Construction Cost Estimates
EM 1110-2-38 dtd 03 May 71	Environmental Quality in Design of Civil Works Projects
EM 1110-2-301 dtd 31 Mar 93	Guidelines for landscape planting at floodwalls, levees, and embankment dam
EM 1110-2-1914 dtd 29 May 92	Designing and Construction of Levees

ER 11-2-201 dtd 30 Aug 95	Civil Works Activities Funding, Work Allowances and Reprogramming
ER 220-2-2 dtd 04 Mar 88	Procedures for Implementing NEPA Department of Army Regulation of Environmental Quality.
ER 1105-2-100 dtd 28 Dec 90	Guidance for Conducting Civil Works Planning Studies
ER 1110-1-8156 dtd 31 Aug 95	Preparation of Water Control Manuals
ER 1110-2-401 dtd 30 Sep 94	Operation, Maintenance, Repair, Replacement, and Rehabitation Manual for Projects and Separable Elements Managed by Project Sponsors
ER 1110-2-1150 dtd 31 May 94	Engineering and Design for Civil Works Projects
ER 1110-2-1302 dtd 31 Mar 94	Civil Works Cost Engineering
ER 1110-2-1200 dtd 30 Oct 93	Plans and Specifications for Civil Works Projects
ER 1110-2-1405 dtd 30 Sep 82	Hydraulic Design for Local Flood Protection Projects
ER 1110-2-8153 dtd 30 Sep 95	Technical Project Sedimentation Investigation
ER 1165-2-28 dtd 30 Apr 80	Corps of Engineers participation in Improvement for Environmental Quality
ER 1165-2-119 dtd 20 Sep 82	Modifications to Completed Projects
ER 1165-2-131 dtd 15 Apr 89	Local Cooperation Agreement for New Projects
ER 1165-2-132 dtd 26 Jun 92	Hazardous, Toxic and Radioactive Waste (HTRW) Guidance for Civil Works Projects
ER 1165-2-400 dtd 09 Aug 85	Recreational Planning Development and Management Policies

ER 1165-2-8154 dtd 31 May 95	Water Quality and Environmental Management for Corps Civil Works Projects

Applied Water Engineers, Inc., 1996, Final Report Napa River Sediment Engineering and Channel Stability Analysis, Project Condition, prepared for the U.S. Army Corps of Engineers, Sacramento District, April 1996.

Federal Emergency Management Agency, FIRMS Flood Insurance Rate Maps Cities in Napa County (Community Panel Number 0602070010 C (Napa)), FEMA Sacramento CA, 1988.

Johnson, Michael J., 1977, Ground Water Hydrology of the Lower Milliken-Sarco-Tulucay Creeks Area, Napa County, California, USGS water-Resources Investigations 77-82, 40p.

Karr, J.R. 1993. Measuring biological integrity: lessons from streams. Pages 83-104 in S. Woodley, J. Kay, and G. Francis, editors. Ecological integrity and the management of ecosystems. St.Lucie Press. Delray Beach, Florida.

Kundel, Fred and Upson, J.E., 1960, Geology and Ground Water in Napa and Sonoma Counties, California, USGS Water-Supply Paper 1495, 252p.

Napa County Flood Protection and Watershed Improvement Authority and Napa County Flood Control and Water Conservation District, Project Costs and Finance Report, January 6, 1998.

Napa County Resource Conservation District, Napa River Watershed Owner's Manual, 1994.

Norris, Robert M. and Webb, Robert. W., 1976, Geology of California, John Wiley, 1976.

U.S. Army Corps of Engineers and Napa County Flood Control and Water Conservation District, A Citizen's Guide to the City of Napa, Napa River, and Napa Creek Flood Protection Project, 1998.

U.S. Army Corps of Engineers and Napa County Flood Control and Water Conservation District, Napa River/Napa Creek Flood Protection Project, Draft Supplemental General Design Memorandum, Volume I and II, December 1997

U.S. Army Corps of Engineers, Waterways Experiment Station, 1992, User's Guide: UTEXAS3 Slope-Stability Package, Instruction report GL-87-1, November 1992.

Water Engineering & Technology, Inc., Napa River Sediment Engineering Study Phase I and II. Prepared for the U.S. Army Corps of Engineers. Sacramento District, Project No. 82-507-89. May, 1990, 136p.

Williams & Associates, Ltd., Conceptual Plan for Enhancement of the Alluvial Floodplains and Tidal Marshlands of the Upper Napa River Estuary, prepared for the State of California Coastal Conservancy, December 1997.

Williams & Associates, Ltd., Sediment Transport Assessment for Napa River Flood Damage Reduction Plan with Recommendations for a Performance Maintenance Program, prepared for the U.S. Army Corps of Engineers, Sacramento District, October 1997.

Williams & Associates, Ltd., 1996, Preliminary Analysis of a Geomorphically-Based Channel Design for the Napa River Flood Management Plan, PWA Ref. #1140 prepared for the U.S. Army Corps of Engineers, Sacramento District, September, 1996.

ENCLOSURE F

NAPA COUNTY WATERSHED MANAGEMENT ACTIVITIES

NAPA COUNTY WATERSHED MANAGEMENT ACTIVITIES

Measure A: On March 3, 1998, the voters of Napa County approved Measure A, the Napa County Flood Protection and Watershed Improvement Sales Tax. This Measure increased the local transactions and use tax by ¼ percent (from 7.25% to 7.75%) for twenty (20) years in order to finance the local share of flood protection projects throughout Napa County. The Measure's proceeds are distributed among the entities collecting the funds countywide according to the following formula:

- City of Napa: 66.6% of revenue; to be used for local match for the Napa River Flood Protection Project.
- American Canyon: 6.7% of revenue; to be used for Master Storm Drain Plan and wetlands restoration.
- Calistoga: 3.3% of revenue; to be used for flood protection and water supply enhancement at Kimball Reservoir, and for flood protection and Napa River bank stabilization.
- St. Helena: 11.5% of revenue; to be used for flood management measures for the Napa River, Sulphur Creek and York Creek, and for flood protection and water supply enhancement measures at Bell Canyon Reservoir.
- Yountville: 2.3% of revenue; to be used for Napa River flood protection for two mobile home parks, and for tributary enhancements.
- County of Napa: 9.6% of revenue; to be used for Watershed and stormwater management, and for flood damage reduction.

Napa Flood Control Project: The Napa River/Napa Creek Flood Control Project includes:

- Improvements to seven miles of the Napa River, and to one mile of Napa Creek;
- Creation of 400+ acres of emergent marsh, and 150 acres of seasonal wetlands; and
- Removal of nine bridges, five of which will be replaced.

The Army Corps of Engineers is responsible for all river and creek improvements. The Napa County Flood Control and Water Conservation District is the non-Federal Sponsor of this Project, and is obligated to acquire all necessary lands, easements and rights-of-way and to relocate existing facilities currently inside the project boundaries, including several utilities and recreation facilities. The City of Napa is constructing three bridges, and CalTrans is constructing one bridge.

Watershed Task Force: In May, 1998, State Senator Mike Thompson and Napa County Supervisor Mel Varrelman convened the Watershed Planning Group, composed of representatives from the agricultural, vintner, environmental, governmental, building, public and other interested sectors. This group was asked to discuss and try to reach consensus on land use practices involving hillside development issues and their effect on the natural environment. In August, 1998, the Group asked the Board of Supervisors to approve a process for a more formal and comprehensive review of watershed management and policies in the unincorporated area of Napa County. The Napa River Watershed Task Force was thereby formed in December 1998. It was charged with examining short-term and longer-term conservation strategies related to sustainable land use, and the protection of natural resources and habitats in the County. The critical role agriculture plays in the County's regional economy and its quality of life was to also be

recognized in its work. The Task Force would advise the Board of Supervisors of their findings, and provide practical recommendations on future actions or policies to address priority issues.

Watershed Task Force Recommendations: The Napa River Watershed Task Force has worked over the past two years in two phases. The Task Force recognized that the existing Regulations do not adequately address broader issues of biological resource protection (e.g., habitat loss, wildlife corridors), as well as changes to downstream hydrology/ run-off, off-site erosion and sedimentation, and other related concerns. Initially, the Task Force identified, but did not resolve, a number of substantive issues related to the County's Conservation Regulations. The unresolved issues therefore necessitated a second phase, including additional technical analyses, to develop a set of recommended revisions to improve the Regulations. These recommendations will be presented to the Board of Supervisors on October 3, 2000.

TMDL Study: The Napa river is currently listed as an impaired river body for the following water quality parameters: sediment, nutrients and pathogens, pursuant to section 303(d) of the Clean Water Act. Once listed, the State Regional Water Quality Control Board (RWQCB) is obligated to develop a Total Maximum Daily Load (TMDL) allocation for each of the parameters. Sedimentation has been determined to be a high priority for action, and funding has been secured by the RWQCB to begin a technical assessment for sediment. Thus, the RWQCB and the EPA recently initiated a study of the causes of and solutions to the sedimentation. The County has been invited in as a full partner to this study and the Board of Supervisors has accepted the offer.

Challenge 21: The Challenge 21 authorization of WRDA 1999, which identifies several pilot areas throughout the country for the integration of structural/non-structural flood protection elements with environmental restoration, specifically identifies the Napa Valley. The St. Helena area may be a good target for this program, specially if we continue to move in the direction of relocating a portion of the Vineyard Valley Mobilehome Park in order to return the river to part of its natural floodway/floodplain through that stretch of St. Helena.

USGS Groundwater Study: On December 7, 1999, the Napa County Flood Control & Water Conservation District Board of Directors approved an agreement with the U.S. Geological Survey (USGS), for a jointly funded geo-hydrologic study of the Milliken-Sarco-Tulocay (MST) Creeks groundwater basin area. The Board of Supervisors had recently adopted a groundwater ordinance for all unincorporated areas within the County which identified the MST basin as a "Groundwater Deficient Area." The MST basin is approximately 10,000 acres in size, and receives an annual recharge of about 3,000 acre-feet. The USGS will determine what the amount of recharge is for the sub-basins, where the recharge points are, what an appropriate extraction rate would be, and what the current extraction rate is.

Dept. of Fish & Game (CDFG) Watershed Academies: On May 5, 2000, Napa County's Department of Public Works submitted a Proposal to the California Department of Fish and Game for the development and presentation of up to four Watershed Academies, modeled after F&G's highly successful Timber Harvesting Academies. Napa County's proposal requests $50,000, and will enable the County to stage Academies specifically adapted to Napa County to address the unique local environment. If successful in its Proposal, the County's four Watershed Academies will deal with the implementation of projects which restore, recover, protect and enhance salmonid and steelhead fisheries habitat.

NAPA COUNTY RESOURCE CONSERVATION DISTRICT WATERSHED MANAGEMENT ACTIVITIES

Napa County Resource Conservation District (RCD): RCD has been an important partner in the implementation of Napa County's Conservation Regulations even before the County's Regulations were enacted in 1991. RCD acts as a resource exchange to facilitate interaction among urban and rural land users, citizen groups, private and public agencies, and encourages and assists acceptance of individual responsibility for watershed management. RCD uses education and partnerships as the major tools for the implementation of its goals of reduction of soil erosion; the enhancement of wildlife habitat; the protection and enhancement of water quality; and the promotion of land stewardship and sustainable agriculture. RCD has also been helpful in the periodic reexamination of the County's Conservation Regulations, to enhance their utility and effectiveness. Additionally, the County, together with the cities and RCD, are in the process of implementing a Geographic Information System which has the potential of providing more sophisticated analytical tools for watershed protection and the prevention of erosion.

Stewardships: Stewardships are made up of interest-based groups of land owners, businesses, agencies, students and other groups and individuals throughout the County and currently cover 15 sub-watersheds and about 1/2 the Napa river basin. Initiated and facilitated chiefly by the Napa County Resource Conservation District, these informal public-private partnerships are having significant success in educating the public and key industry sectors on water quality, soil erosion and good management practices. Their accomplishments include planning and implementing a variety of stream restoration and improvement projects.

ENCLOSURE G

PROPOSED RESTORATION PLAN

UPPER YORK CREEK DAM REMOVAL & RESTORATION PROJECT

DRAFT PROPOSED RESTORATION PLAN
UPPER YORK CREEK DAM REMOVAL & CREEK RESTORATION PROJECT
ST. HELENA, CALIFORNIA

1. PROJECT:

The city of St. Helena, with input from several agencies and interested parties, has developed the necessary background information to evaluate the feasibility of removing the Upper York Creek Dam. The following information incorporates the elements of the evaluation that has taken place to date. The specific details for the dam removal and creek restoration would be investigated and developed during the feasibility phase.

2. LOCATION:

The York Creek drainage, which originates in the western hills of the Napa Valley watershed flows through the city of St. Helena and eventually feeds into the Napa River. The Upper York Creek Reservoir is a man-made in-stream reservoir, approximately 1.25 miles northwest of the city of St. Helena, at an elevation of about 600 feet. Upper York Creek Dam is an earthen dam built around the turn of the century as a water supply for the city of St. Helena. Another impoundment, Lower York Creek Reservoir is an off-stream reservoir on the north side of York Creek approximately 1 mile downstream from Upper York Creek Reservoir.

3. EXISTING CONDITIONS:

The area contains a mixture of vegetation types including montage hardwood-conifer, mixed chaparral, fresh emergent wetland, meadow, riverine, and lacustrine habitats. The hardwood-conifer type grades into chaparral on the drier, south-facing slopes, redwood trees grow in the more shaded areas, and wetlands occur in and around the reservoir area. Dominant tree species of the area include live oaks (*Quercus spp*.), bigleaf maple (*Acer macrophyullum*), California laurel (*Umbellularia californica*), hazel (*Corylus cornuta*), madrone (*Arbutus manziessii*), coast redwood (*Sequoia sempervirens*), Douglas-fir (*Pseudotsuga menziesii*), and alder (*Alnus sp*.).

In 1992-1993, the reservoir was dredged and a vertical standpipe with an attached trash rack was installed to replace a failed scour pipe valve. Since 1993, due to several years of unusually heavy rainfall, the reservoir has filled with erodible and weak sandy and gravelly clays to a depth of approximately 17 feet, at its deepest. The amount of sediment currently deposited in the reservoir is estimated to be approximately 18,000 cubic yards. The Department of Fish and Game and others are concerned about the adverse effects of an uncontrolled release of the sediment to the downstream habitat. Also, the dam is a barrier to steelhead migration into the upper reaches of York Creek.

4. DESCRIPTION OF PROPOSED ECOSYSTEM RESTORATION:

a. Proposed Physical Changes to the Ecosystem

The Napa River and its tributaries, e.g. York Creek, provide the largest ecologically rich and diverse riverine system within the San Pablo Bay watershed ecosystem. The proposed modifications to York Creek would restore and/or enhance approximately 2 acres of riparian habitat on York Creek adjacent to Spring Mountain Road. The proposed project would provide rearing, resident and migratory habitats for Federally listed threatened and endangered species. The project would reconnect the Napa River with approximately 1.5 miles of critical upstream tributary spawning and rearing habitat. Areas both upstream and downstream of the existing earthen dam would provide suitable summer habitat for rearing juvenile salmonids. Using juvenile steelhead density data collected during fisheries studies on adjacent watershed, it was estimated that the upper reach of York Creek would provide potential habitat, under the general flow conditions, of approximately 5,000 juvenile steelhead (the estimated range of abundance was 1,400 to 7,000).

b. Major Project Features and Operations to be Modified

The physical changes would include the following:

1. Excavation of the existing York Creek earthen dam and sediment accumulation in reservoir.

   a) The existing dam spillway, adjacent to Spring Mountain Road, is believed to provide stability to the existing roadbed. Leave the existing dam spillway in place and use the excavated sediment from the dam to fill/bury the spillway.
   b) Provide appropriate structural cross bracing, etc. to ensure the stability of the spillway is not a future problem after it is filled/buried.
   c) Excavate and transport sediment to an appropriate disposal site. (The city of St. Helena is currently evaluating restoration opportunities on Sulfur Creek. The excess sediment may be used to restore/enhance a degraded section of Sulfur Creek, i.e.: the Smith quarry operation.)
   d) Remove the standpipe inlet and outlet conduit.
   e) Install bank stabilization devises, as necessary, to prevent unacceptable erosion patterns of the banks adjacent to Spring Mountain Road. All stabilization improvements would consider maximizing the restoration and naturalization of York Creek through the project area. Riprap or other hard surfaces may be necessary at curves in the stream corridor.

2. Restore and Enhance the Riparian Corridors

   a) Reestablish York Creek's low flow channel to improve water quality, migratory fish passage capacity, and geomorphic stability. The restoration project would be planned in accordance with the "Living River Guidelines" as described in the Goals and Objectives for a "Living" Napa River System Based on Geomorphic, Water Quality and Habitat Considerations, prepared for the Community Coalition, July 2, 1996. The existing flood conveyance capacity would be maintained or improved.
   b) Plant riparian habitat along York Creek to provide cooler water temperatures, shelter from predators, and increased food supply for rearing, resident, and migratory fish and wildlife.

3. Improve the Success Migration of Anadromous Fish

   a) A natural rock formation under the earthen dam embankment may require modifications to support the migration of anadromous fish. One option being considered is the installation of large boulders downstream to create a natural gradient with resting pools for migrating fish. Another option is to install a fish ladder adjacent to the rock formation.
   b) Large boulders or other devices may be anchored in the stream channel through the project area to encourage pools and riffles formation.

c. Existing Conditions - Ecosystem Degradation

1. Historically, the Upper York Creek Dam site had extensive riparian habitat along the stream corridor and upland savanna. The factors that have contributed to the area's degradation include:

   a) Construction of the Upper York Creek Dam has contributed to large influxes of sediment impacting downstream habitat and water quality. This has occurred because of operational errors and flood occurrences.
   b) Encroachment on the landscape by the Upper York Creek Dam have degraded riparian habitat for rearing, resident, and migratory fish and wildlife.
   c) The lack of riparian cover has increased water temperature and sedimentation along the creek, resulting in poor water quality.

2. This degradation to the landscape has reduced the project area's ability to support listed species. Several of the species that could reside in the project area are listed below:

TABLE 1

Scientific Name	**Common Name**	**Status**		
		Federal	State	California Department of Fish and Game
Amphibians				
Rana aurora draytonii	California Red-legged Frog	Threatened	None	
Reptiles				
Clemmys marmorata marmorata	Northwestern Pond Turtle	Species of Concern	None	
Fish				
Oncorhynchus tshawytscha	Winter-run Chinook Salmon	Endangered	Endangered	
Oncorhynchus gairdnerii	Steelhead	Threatened	None	
Plants				
Birds				

Agelaius tricolor	Tricolored Blackbird	Species of concern	None	Species of special concern
Aquila chrysaetos	Golden Eagle	Bald Eagle Protection Act		Species of special concern
Asio flammeus	Short-eared Owl			Species of special concern
Chaetura vauxi	Vaux's Swift	Species of concern		
Contopus cooperi	Olive-sided Flycatcher	Species of concern		
Dendroica occidentalis	Hermit Warbler	Species of concern		
Empidonax difficilis	Pacific-slope Flycatcher	Species of concern		
Falco Peregrinus	American Peregrine Falcon	Endangered	Endangered	
Selasphorus rufus	Rufous Hummingbird	Species of concern		
Strix occidentalis caurina	Northern Spotted Owl	Threatened		
Selasphorus sasin	Allen's Hummingbird	Species of concern		
Sphyrapicus ruber	Red-breasted Sapsucker	Species of concern		
Thryomanes bewickii	Bewick's wren	Species of concern		
Toxostoma redivivum	California Thrasher	Species of concern		

d. Expected Output

The expected outputs in the project area are:

1. Ensure and improve the viability of Federal and State listed species by providing rearing, resident, and migratory habitat in and through the project area, i.e. steelhead and coho salmon.
2. Provide protective cover for other wildlife including raccoons, gray fox, Western flycatcher, red-shouldered hawk, and Federal and State of California Species of Special Concern.
3. There would be secondary benefits of the aesthetic values to the neighboring community and educational opportunities for local community.

After the restoration of the project area is complete, additional analysis would evaluate the impacts and benefits to fish, wildlife, and plant species resulting from the geomorphic and hydrologic improvements in the project area. The assessment would be based on a regional accepted habitat quality indicator process, for example the Habitat Evaluation Procedure (HEP).

The intent would be to qualitatively evaluate with- and without-project biological outputs in terms of habitat units. Habitat units would be derived from assessing habitat values to different community types: abundance and diversity of wildlife, diversity and structure of vegetation, amount of habitat edge, etc. The different community types are habitat indicators, and include riparian, native upland, etc. The regionally accepted assessment would be completed during the development of the feasibility phase.

e. Importance of Output

The proposes outputs would be in the nations interest for the following reasons:

1. The proposed outputs would improve the viability of listed species, see above, by improving the environmental quality of York Creek by restoring riverine habitat.
2. Environmental improvements would benefit listed species and their habitat, as well as, provide a net gain in nutrient input, benthic invertebrates, and riparian and herbaceous vegetation to contribute to the energy of the Napa River food chain.
3. In addition, the Federal Clean Water Action Plan requires the State of California to develop a Unified Watershed Assessment (UWA) to guide allocation of new federal resources for the protection of sensitive areas. Using three criteria – high value, high risk, and high priority – watersheds are prioritized. The State of California has included this area in the highest category, Priority I (Impaired), adding urgency to the development of this project.

f. Land, Easements, Rights of Way, Relocations, and Disposal Sites (LERRDs)

The project area includes lands owned by the city of St. Helena. The non-Federal sponsor would obtain all necessary lands, easements, rights-of-way, relocations, and disposal site LERRDs. No problems are anticipated in obtaining LERRDs. Land acquisition may be required. The estimated cost of LERRDs is $(*not available at this time*).

As provided in Water Resources Development Act (WRDA) 1986 and per language in the Project Cooperation Agreement (PCA), the non-Federal sponsor would be responsible for the acquisition of LERRDs. The Corps of Engineers, Sacramento District, would prescribe the necessary real estate rights required for the project's features. All necessary LERRDs must be acquired prior to advertisement of construction. There are standard estates required for various project features, for example, fee acquisition would be required for environmental projects, mitigation, and recreation features, permanent levee easements or channel improvement easements for levees and channel-type work, and temporary easements for construction. These required real estate rights must be acquired by the sponsor from all property owners regardless of whether they are private or public owners. The Corps would prepare a "gross appraisal" (this would be a cost estimate for planning purposes rather than a site specific appraisal) for the required real estate to be acquired. This valuation, which based on "highest and best use" regardless of ownership, would be included in the Real Estate Plan, which would be a section of the project document during the feasibility phase. This estimate of value would be considered along with the other project costs in determining the overall project costs and potential cost sharing. The sponsor would receive credit for all LERRDs they contribute after commencement of the construction. The credit would be based on site specific appraisal reports obtained by the

sponsor after the property has been acquired. The Corps would review all appraisals for conformity with standard Federal appraisal practices.

g. Additional Project Alternatives to be Considered

During the feasibility phase, other alternatives will be evaluated to ensure that the project alternative provides the highest value to the environment and the local community. Three alternatives to be evaluated are as follows:

1. The no project alternative maintains the existing condition. This alternative is not seen as preferred because of the impact on the viability of federally listed species.
2. A second alternative would remove most of the existing dam embankment and a portion of the sediment, debris and vegetation within the reservoir to allow flows to naturally change the stream geomorphology. This alternative is expected to have unknown adverse impacts to downstream area, potentially reducing the overall quality of restoration project.
3. The third alternative would restore a longer reach of York Creek to improve fish migration and the geomorphic stability of the stream corridor. This would include modifying or removing a water diversion structure approximately ½ mile downstream from the Upper York Creek Dam. The diversion structure diverts water by a 30-inch diameter corrugated metal pipe culvert into Lower York Creek Dam. The non-Federal sponsor is evaluating potential opportunities of partnering with other agencies to address different reaches of York Creek. Additional review of this alternative would take place during the feasibility phase to determine the benefits and cost-effectiveness associated with this alternative.

h. Study Methodologies

1. The studies necessary for effective project implementation may include:

    a) Hydraulic and hydrologic evaluation to ensure that project modifications restore geomorphic stability and assess the flow frequencies within York Creek to ensure sufficiently high velocities for adequate pool depth and riffle formation for upstream migration and spawning.
    b) Sediment transport study to determine sediment deposition rates and sediment capacity to meet the objectives of the restoration project modifications. Removal of the dam would alter stream hydraulic conditions within the area resulting in changes in sediment deposition and erosion patterns, affecting pool depths and other channel conditions.

2. The studies would support the project design in the following ways:

    a) Numerical modeling of the stream channel would assist in identifying an effective solution. The study would include on-site measurements to verify that the results of the numerical modeling fit on-site conditions.
    b) Hydraulic and hydrologic evaluations would identify the channel dimensions and gradient of the low flow channel to ensure a stable channel, to minimize maintenance requirements and optimum geomorphic stability, and to achieve the highest level of restoration.

c) Sediment transport study would determine sediment deposition rates and sediment capacity requirement to meet the objectives of the project modifications. Sediment loads impact the effectiveness of the low flow channel and impact water quality. To solve these and related problems, a better understanding of the sediment input from upstream, and the impacts of increased sediment deposit through the project reach, would be needed. On-site measurements would be necessary to identify an effective solution.

5. VIEWS OF THE SPONSOR:

The city of St. Helena would assume full responsibility for all future projects related operation, maintenance, rehabilitation, and replacement needs. Their letter of support is attached (LETTER NOT INCLUDED).

6. VIEW OF FEDERAL, STATE, AND REGIONAL AGENCIES:

The California Department of Fish and Game, National Marine Fisheries Service, Department of Water Resources, and other agencies and local non-profits supports the removal of the dam to benefit the listed species in York Creek. The modifications would also support interagency agreements on fisheries habitat restoration and creation.

7. ENVIRONMENTAL COMPLIANCE REQUIREMENTS:

An Environmental Assessment, FONSI, and Negative Declaration (pursuant to the California Environmental Quality Act) would be prepared as part of the feasibility phase. Overall, the restoration project would produce long-term beneficial impacts to fish and wildlife resources in York Creek and the Napa Valley watershed.

8. COSTS AND BENEFITS:

The project cost for the modification is $(*not available at this time*) with $(*not available at this time*) land, easements, rights of way, relocations, disposal (LERRDs) costs. These cost would be further refined during the next phase when a more detailed evaluation of project modifications would occur.

a. Costs

The removal of the dam is expected to have short-term impacts to the water quality down stream from the construction site. Also, the existing fresh water wetland will be returned to a riverine habitat.

The preliminary cost estimate for the proposed project is $(*not available at this time*). This estimate includes the cost of short-term monitoring to verify the effectiveness of the project modifications.

b. Benefits

The removal of Upper York Creek Dam and the restoration of York Creek through the project reach would provide significant long-term increase in habitat for several threatened and endanger species and/or their habitat, including the Coho salmon, the steelhead, and the California red legged frog. In addition, the restored riparian corridors would support increased

populations of migratory waterfowl and anadromous and resident fishes because of increased secondary productivity in the form of juvenile fish and larval stages of crustaceans. The increase in canopy cover would also improve river/creek ecosystem quality by reducing temperature fluctuations to improve salmonid spawning, rearing, and migratory survival.

9. SCHEDULE: (estimate based on potential authorization)

Description	**Date**
Initiate Study	Dec 2001
Public Scoping Meeting and Local Involvement	Jan 2002
Final Environmental Restoration Report (ERR) to SPD	May 2003
Initiate Plans and Specifications	July 2003
Complete Plans and Specifications	Feb 2004
Project Cooperation Agreement (PCA) signed	Mar 2004
Advertise Construction Contract	Apr 2004
Award Construction Contract	May 2004
Construction Start	June 2004
Complete Physical Construction	October 2006

NOTE: The schedule allows for restricted access due to seasonal species life cycle processes.

10. SUPPLIEMENTAL INFORMATION:

The city of St. Helena has been ordered to remove the dam by the Napa County District Attorney's office upon the request of the Department of Fish and Game. The removal of the dam will follow all requirements set forth in the Fish and Game Code 1601, Agreement Regarding Proposed Stream or Lake Alteration.

ENCLOSURE H

LETTER OF INTENT

ENCLOSURE I

LETTERS OF SUPPORT